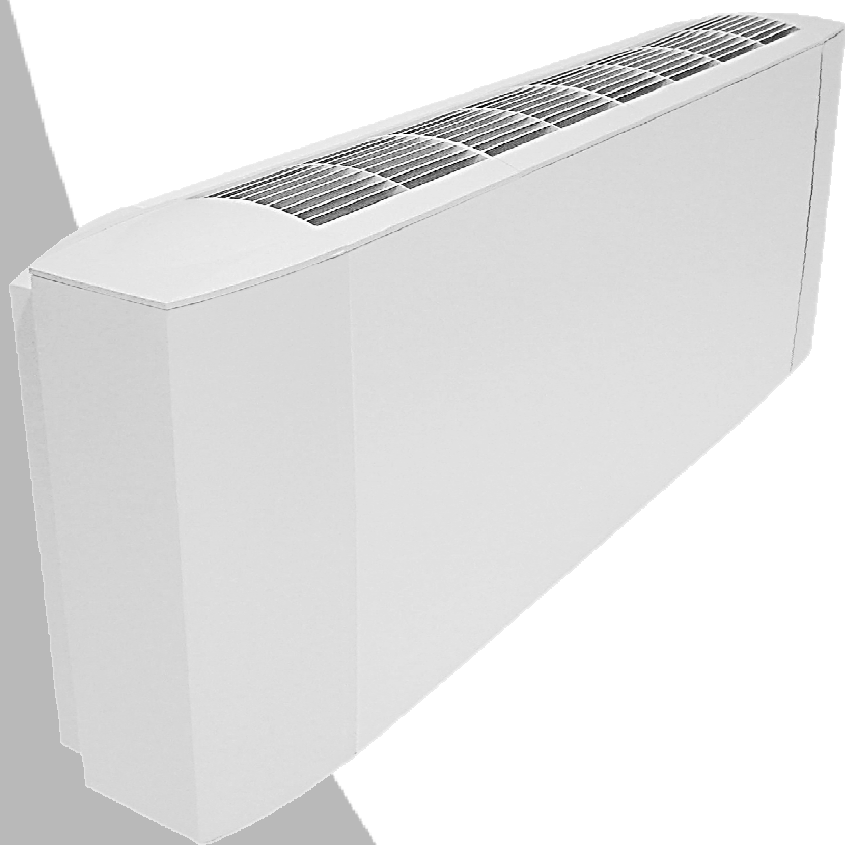


SERIES
ZEFIRO

TECHNICAL MANUAL



FAN COILS





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INTRODUCTION

ZEFIRO series units are designed for air conditioning in the residential and commercial sector, for indoor installation in areas not exposed to freezing conditions or extreme temperatures and in a dust-free, non-explosive atmosphere. The manufacturer may not be held liable for the consequences of incorrect use.

The ZEFIRO units are available in the following variants:

- versions with casing (for exposed, non- ducted installation) and in versions without casing (for non-exposed, ducted installation)
- horizontal and vertical versions
- versions with traditional three-speed motor (AC) and with low consumption motor (EC)

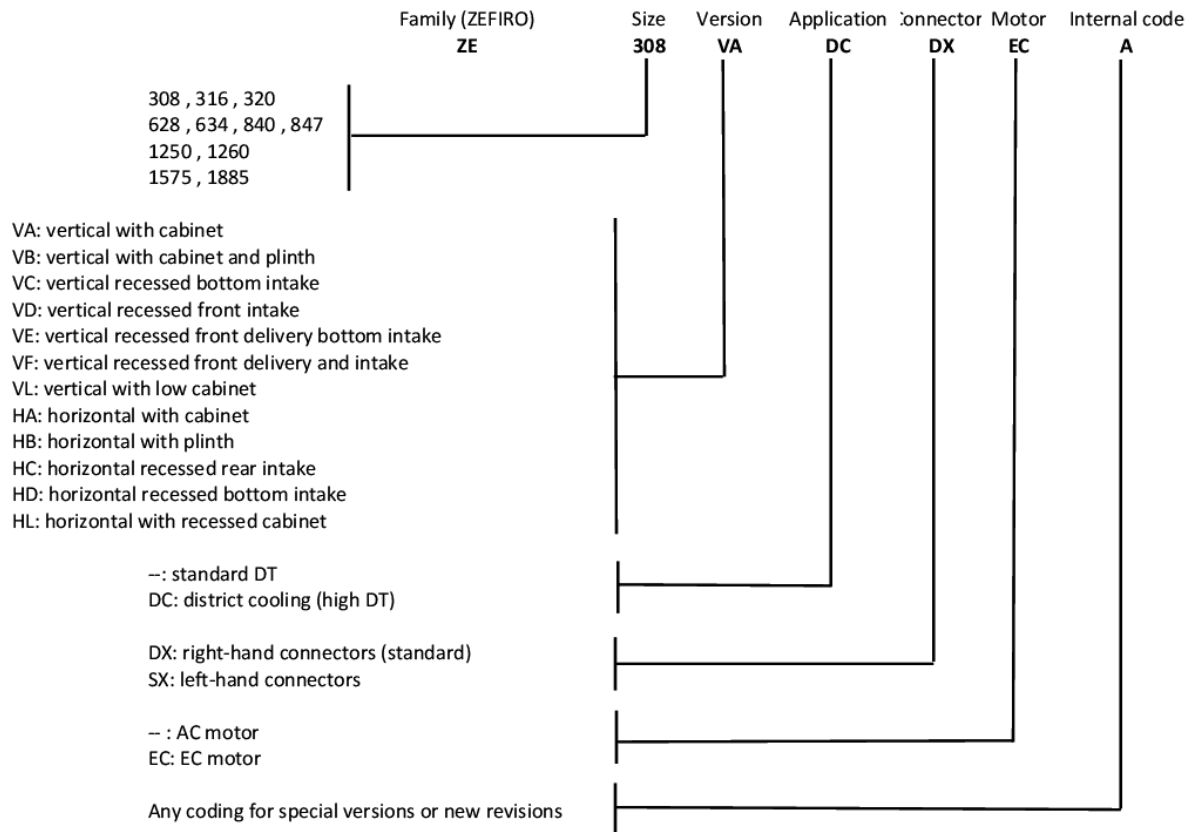
2-APPLICATION LIMITS

Electrical power supply	230V ; 50/60Hz (1)
Coil inlet water temperature	5 / 70°C
Return air temperature	10 / 50°C
Return air relative humidity	15 / 70%

(1) +/- 10% with respect to the supply voltage. All technical data in this manual refer to 230V / 50Hz.

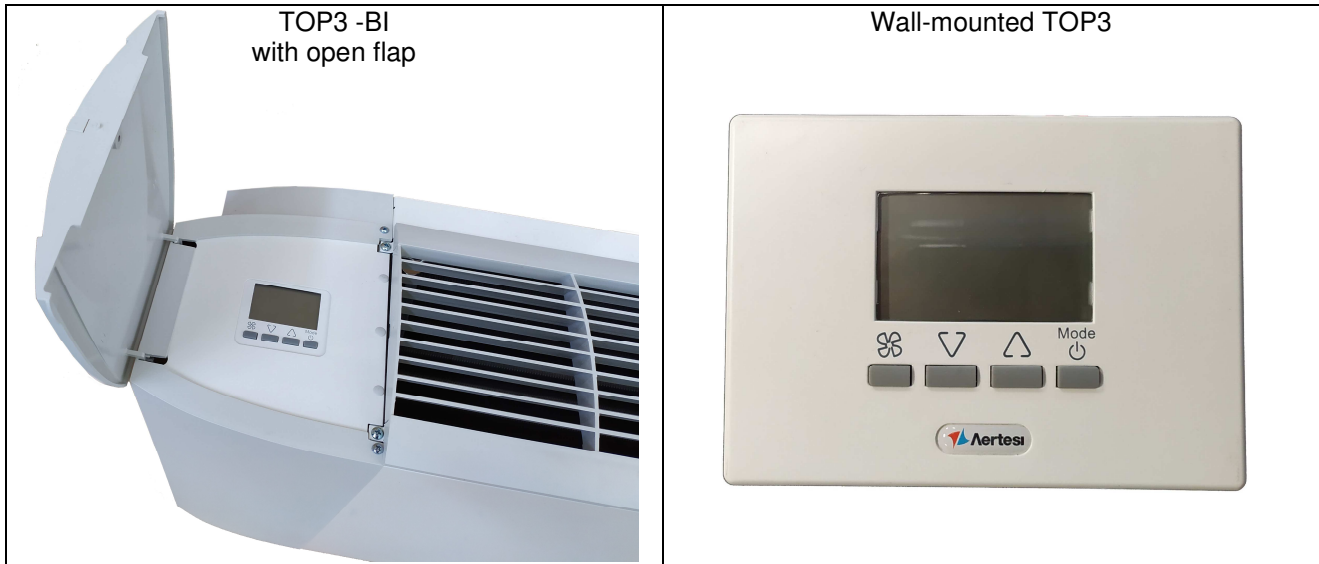
The units should only operate close to their limit operating values for short periods of time, because operation close to limit conditions for prolonged periods can reduce the normal lifetime of unit components.

3-CODES INTERPRETATION KEY



4-CONTROLS

The units of the ZEFIRO series can be controlled by wall-mounted or unit-mounted (BI = Built-In) thermostats.



The controls installed on-board the unit (BI) can only be used for versions with vertical cabinets (VA, VB, VL) because in the other versions (with horizontal or recessed horizontal and vertical cabinets) the temperature probe provided inside the unit would not be able to sense the actual room temperature. In units with vertical cabinets (VA, VB, VL) it is still recommended to use wall-mounted thermostats, rather than built-in ones, because they allow more accurate temperature measurements, thanks to better positioning of the temperature probe.

The built-in controls are positioned under the left or right flap (on the opposite side to the hydraulic connections).

The controls for units with AC motors must have contacts for the three motor speeds sized for at least 1A of inductive load, i.e. the highest power draw from the motor.

Direct connection (in parallel) of more than one unit with AC motor to the same control or to the same relay board is strictly not permitted. In this case, one relay board must be used for each unit (or a single relay board with dedicated contacts for each unit) such as the ETBN-2.5A board.

The controls for units with EC motor must have an output with 0/10V voltage signal sized to provide at least 0.2mA of current for each connected motor (the impedance of the driver's 0/10V input being 50kOhm). It is possible to connect several units with EC motor in parallel to the same control, until the maximum current rating of that control is reached, without interposing other boards.

Using the SC3 accessory, it is also possible to control the EC motor units using a traditional three-speed AC motor control.

For information on the proposed and approved controls for ZEFIRO fan-coils, please refer to the dedicated literature. Should you wish to use control types other than those proposed and approved by AERTESI, the manufacturers will not be held liable for any malfunctions caused by them.

5-TECHNICAL SPECIFICATIONS

FRAME: made of 0.80mm thick galvanized sheet steel. This rugged structure prevents the propagation of vibration and comes complete with ceiling fixing brackets.

CABINET: made of 0.8mm thick RAL 9010 painted (or pre-painted) sheet metal. The sides and delivery grilles, made of ABS (RAL 9002 colour), allow cabinets to be obtained with a stylish, modern design that blends seamlessly into any environment. The delivery grille can easily be rotated by 180° to direct the air flow towards the room or towards the wall.

ACCESSIBILITY: the filter can be removed from the front (for vertical versions) or from the bottom (for horizontal versions). Access to the electrical control panel and to the hydraulic connections can be obtained by removing the plastic side panels only and not the entire cabinet. Accessibility to the other internal components (fan, coil) is obtained by removing the whole front panel. The hydraulic connectors are supplied as standard on the right side, and optionally on the left (viewed from in front of the fan-coil); the electrical panel is on the opposite side.

FILTER: ISO COARSE class with ePM10 efficiency <50% (ISO 16890), 6mm thickness, in washable synthetic material. Other types on request.

FAN UNIT: the fans have forward curved blades and dual intake centrifuges directly coupled to the motor. The auger is made of galvanized steel or ABS, the fan is in aluminium or ABS (depending on the version and size of the motor). The motor and fans are balanced after installation on the fan unit plate. The motor is mounted on rubber vibration damping mounts, degree of protection IP20 and has three speeds (AC motor) or a 0-10V control (EC motor).

COIL: made from 3/8" diameter copper tubing (5/16" diameter for District Cooling special coils) with high efficiency corrugated aluminium fins and with manual air venting valve in the upper part of the manifold. Nominal pressure PN8. Direct expansion coils are available on request.

CONDENSATE COLLECTION TRAY: For sizes 308 to 1260, the main tray is made of ABS, a corrosion-proof material suitable for contact with condensate. This material is also a good thermal insulator, which prevents the formation of condensation under the tray.

For the sizes 1575 to 1885 it is made of galvanized steel sheet and painted to prevent the formation of rust. The drain pipe and the edges of the metal trays are suitably sealed to avoid leaks over time. The tray is externally insulated with thermally insulating material.

For all sizes, the tray is shaped and assembled to an angle designed to minimise standing water.

INSULATION: made of 3mm thick polyurethane, it prevents condensation on the metalwork.

ELECTRICAL CONTROL PANEL: made of galvanized sheet steel or plastic and positioned on the opposite side with respect to the hydraulic connections. On request it can be built with a watertight plastic enclosure and positioned on the same side as the hydraulic connections.

If the machine is equipped with a factory-installed built-in (BI) control, all the electrical parts of the fan coil (motor, valves, etc.) are pre-connected to the manufacturer's control.

While if the machine is supplied ready to be connected to a wall-mounted control, the electrical devices are connected to a terminal block, to which the installer will, in turn, connect.

REVERSIBILITY: This feature allows users to change the hydraulic connections side on site, before carrying out the installation. This feature is available for all horizontal units, while for vertical units it is only available for sizes 1575 and 1885.

6-TECHNICAL DATA (AC motors)

This chapter lists the operating specifications of the units with 3-row (sizes 316 to 1250), 4-row (sizes 1575 to 1885) and auxiliary 1-row coils.

The main 4-row coils (sizes 320 to 1260) and District Cooling coils are also available from our selection software.

6.1- 2-pipe unit



		316			628			840		
		3 rows			3 rows			3 rows		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m3/h	168	250	288	304	451	523	427	680	756
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	0.96	1.29	1.42	1.70	2.27	2.51	2.48	3.48	3.75
Sensitive capacity (E)	kW	0.74	1.02	1.14	1.32	1.8	2.02	1.89	2.72	2.95
Water flow rate	l/h	165	221	245	293	390	432	426	598	644
Δp (water) (E)	kPa	3.1	5.3	6.3	4.4	7.2	8.6	10.7	19.6	22.2
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity (E)	kW	0.98	1.34	1.50	1.73	2.36	2.65	2.46	3.53	3.83
Water flow rate	l/h	181	249	276	322	439	492	456	657	713
Δp (water) (E)	kPa	3.1	5.3	6.5	4.3	7.4	9.0	10.0	19.1	22.0
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	13	24	29	21	36	43	42	72	87
Max power draw	A	0.19			0.24			0.47		
SOUND DATA										
Sound power (E)	dB(A)	32	40	44	34	43	46	38	49	52
Sound pressure (*)	dB(A)	23	31	35	25	34	37	29	40	43

		1250			1575			1885		
		3 rows			4 rows			4 rows		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m3/h	647	1017	1133	877	1206	1359	1111	1538	1742
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	3.36	4.56	4.89	5.04	6.36	6.91	6.47	8.20	8.93
Sensitive capacity (E)	kW	2.62	3.67	3.96	3.90	5.03	5.51	4.96	6.42	7.07
Water flow rate	l/h	578	784	840	867	1093	1187	1112	1409	1536
Δp (water) (E)	kPa	24.0	41.0	46.2	11.5	17.4	20.1	21.2	32.0	37.2
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity (E)	kW	3.39	4.78	5.17	5.08	6.57	7.21	6.42	8.34	9.20
Water flow rate	l/h	632	889	961	944	1221	1341	1195	1552	1711
Δp (water) (E)	kPa	23.3	42.3	48.6	11.1	17.4	20.6	19.8	31.4	37.2
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	66	115	136	107	135	147	124	163	184
Max power draw	A	0.74			0.75			0.92		
SOUND DATA										
Sound power (E)	dB(A)	47	58	61	54	62	65	55	62	65
Sound pressure (*)	dB(A)	38	49	52	45	53	56	46	53	56

(E): Eurovent certified performance

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m3 space and a reverberation time of 0.5 sec.

6.2- 4-pipe unit



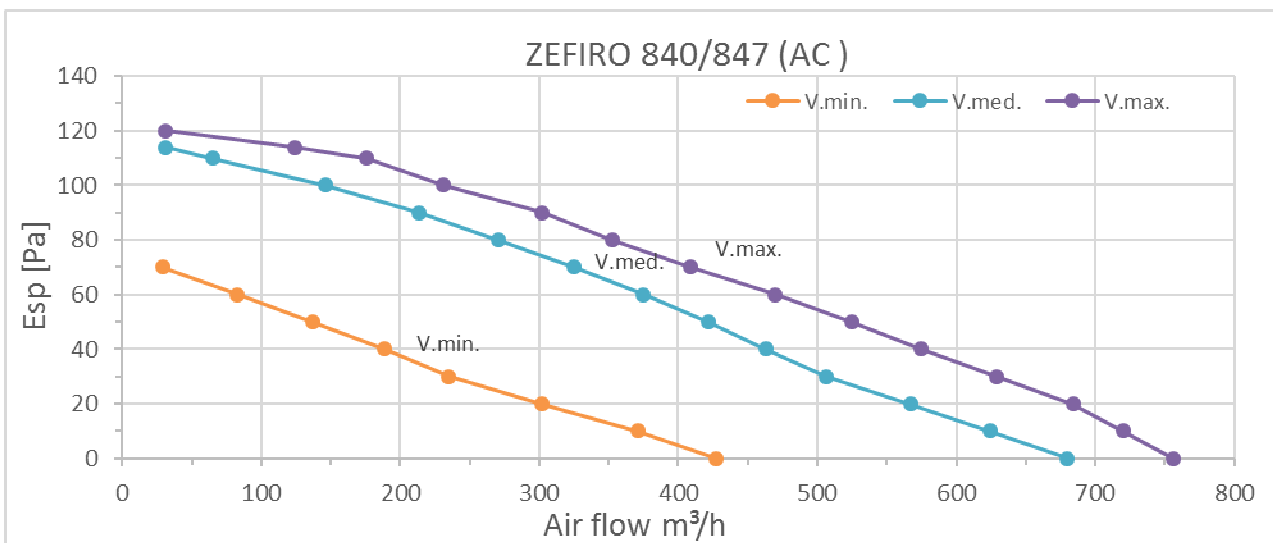
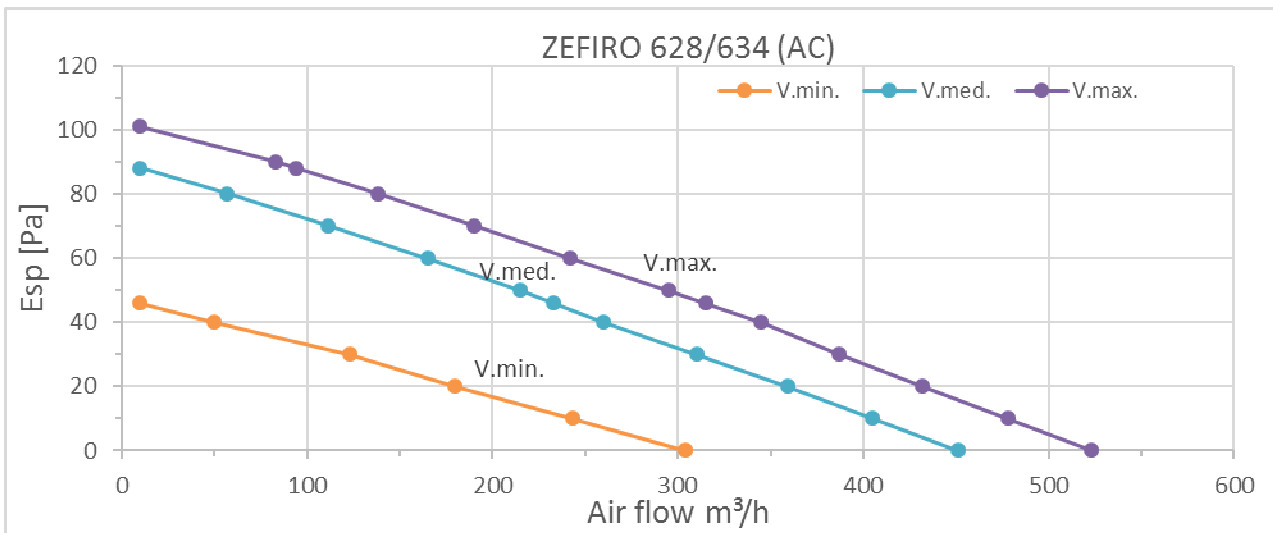
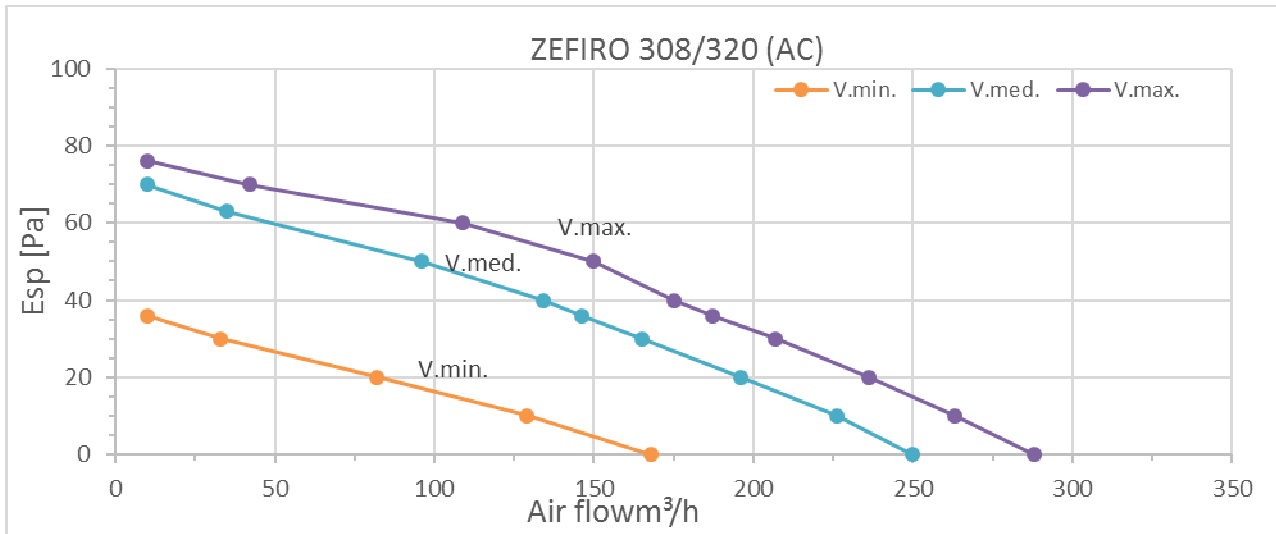
		316 + B1			628 + B1			840 + B1		
		3 rows + 1			3 rows + 1			3 rows + 1		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m ³ /h	168	250	288	304	451	523	427	680	756
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	0.96	1.29	1.42	1.70	2.27	2.51	2.48	3.48	3.75
Sensitive capacity (E)	kW	0.74	1.02	1.14	1.32	1.8	2.02	1.89	2.72	2.95
Water flow rate	l/h	165	221	245	293	390	432	426	598	644
Δp (water) (E)	kPa	3.1	5.3	6.3	4.4	7.2	8.6	10.7	19.6	22.2
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity (E)	kW	0.98	1.28	1.41	1.76	2.30	2.53	2.41	3.28	3.52
Water flow rate	l/h	86	112	123	154	200	221	210	286	307
Δp (water) (E)	kPa	1.7	2.7	3.2	7.4	11.8	14.0	2.3	4.0	4.6
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	13	24	29	21	36	43	42	72	87
Max power draw	A	0.19			0.24			0.47		
SOUND DATA										
Sound power (E)	dB(A)	32	40	44	34	43	46	38	49	52
Sound pressure (*)	dB(A)	23	31	35	25	34	37	29	40	43

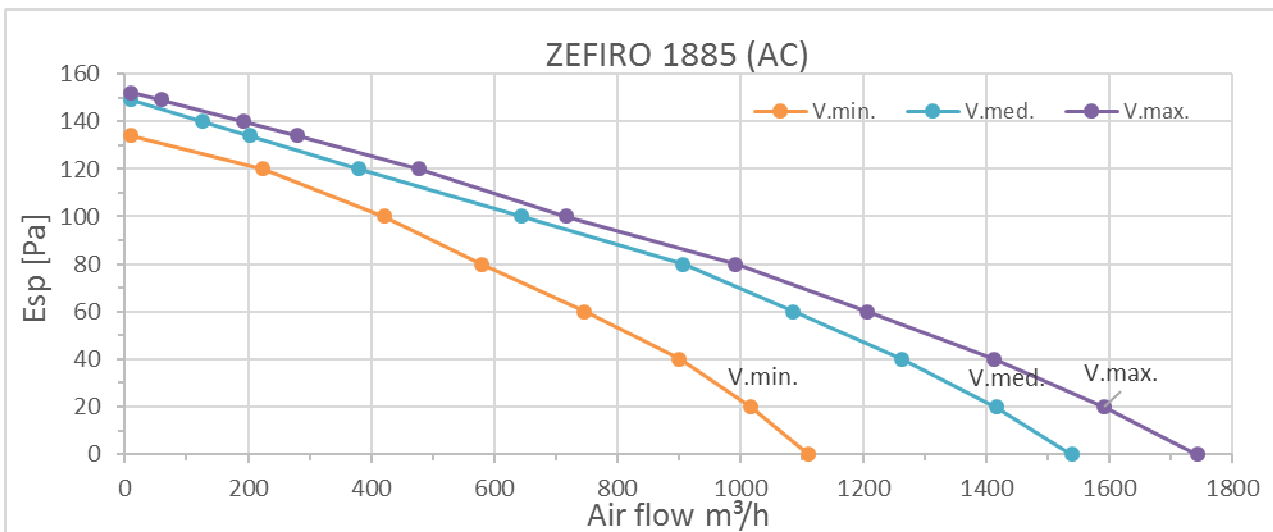
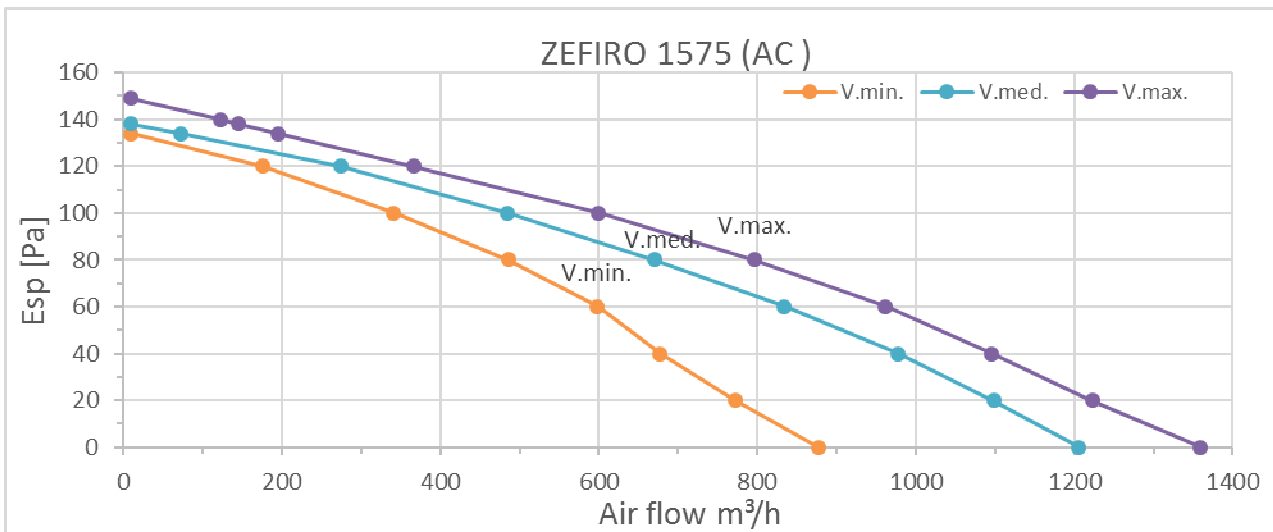
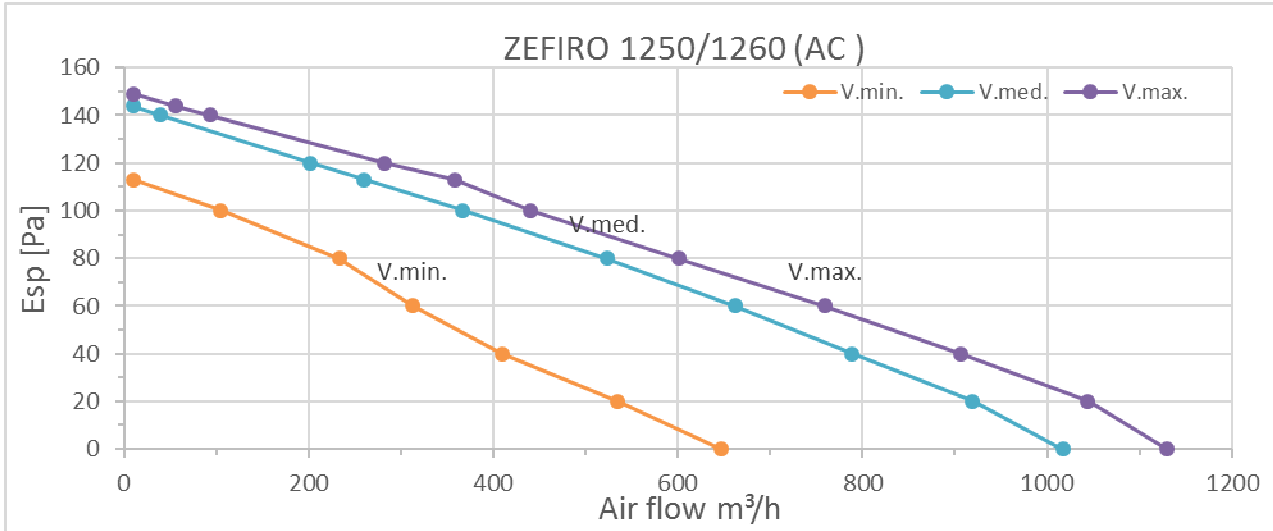
		1250 + B1			1575 + B1			1885 + B1		
		3 rows + 1			4 rows + 1			4 rows + 1		
Speed		min	med	max	min	med	max	min	med	max
Air flow rate	m ³ /h	647	1017	1133	877	1206	1359	1111	1538	1742
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	3.36	4.56	4.89	5.04	6.36	6.91	6.47	8.20	8.93
Sensitive capacity (E)	kW	2.62	3.67	3.96	3.90	5.03	5.51	4.96	6.42	7.07
Water flow rate	l/h	578	784	840	867	1093	1187	1112	1409	1536
Δp (water) (E)	kPa	24.0	41.0	46.2	11.5	17.4	20.1	21.2	32.0	37.2
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity (E)	kW	3.18	4.15	4.42	4.29	5.24	5.53	5.41	6.51	7.02
Water flow rate	l/h	277	362	386	374	457	482	472	568	612
Δp (water) (E)	kPa	5.0	8.0	8.9	10.3	14.7	16.2	18.3	25.4	29.0
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	66	115	136	107	135	147	124	163	184
Max power draw	A	0.74			0.75			0.92		
SOUND DATA										
Sound power (E)	dB(A)	47	58	61	54	62	65	55	62	65
Sound pressure (*)	dB(A)	38	49	52	45	53	56	46	53	56

(E): Eurovent certified performance

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.

ZEFIRO





7-TECHNICAL DATA (EC motors)

This chapter lists the operating specifications of the units with 3-row (sizes 316 to 1250), 4-row (sizes 1575 to 1885) and auxiliary 1-row coils. **The main 4-row coils (sizes 320 to 1260) and District Cooling coils are also available from our selection software.**

7.1- 2-pipe unit



		316			628			840		
		3 rows			3 rows			3 rows		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	130	210	450	250	360	680	300	500	850
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	0.68	0.97	1.64	1.26	1.66	2.57	1.62	2.40	3.49
Sensitive capacity (E)	kW	0.52	0.77	1.36	0.96	1.30	2.11	1.21	1.84	2.77
Water flow rate	l/h	116	168	283	217	286	442	278	412	599
Δp (water) (E)	kPa	2.2	4.2	10.5	3.3	5.4	11.7	6.6	13.2	25.5
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity (E)	kW	0.78	1.17	2.09	1.47	1.97	3.22	1.81	2.77	4.19
Water flow rate	l/h	135	203	362	254	341	557	313	479	724
Δp (water) (E)	kPa	2.1	4.2	11.7	3.2	5.4	12.8	5.9	12.4	25.6
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	4	5	20	4	6	20	5	8	28
Max power draw	A	0.22			0.21			0.27		
SOUND DATA										
Sound power (E)	dB(A)	29	35	53	29	35	53	30	36	54
Sound pressure (*)	dB(A)	20	26	44	20	26	44	21	27	45

		1250			1575			1885		
		3 rows			4 rows			4 rows		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	300	520	1200	350	750	1560	450	920	2010
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	1.62	2.47	4.35	2.06	3.84	6.52	2.67	4.82	8.45
Sensitive capacity (E)	kW	1.21	1.90	3.55	1.53	2.95	5.26	1.97	3.66	6.77
Water flow rate	l/h	278	424	748	355	661	1121	460	828	1453
Δp (water) (E)	kPa	8.6	18.2	49.2	3.1	9.4	23.7	5.8	16.4	44.1
HEATING - air 20 °C - water inlet 45 °C, outlet 40 °C										
Capacity (E)	kW	1.81	2.86	5.38	2.28	4.45	8.02	2.93	5.49	10.23
Water flow rate	l/h	313	494	931	395	771	1387	507	950	1775
Δp (water) (E)	kPa	7.7	17.1	52.2	2.7	8.8	24.8	5.0	15.0	45.2
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	5	11	70	6	22	183	8	25	165
Max power draw	A	0.53			1.10			1.29		
SOUND DATA										
Sound power (E)	dB(A)	32	42	62	34	49	66	34	49	66
Sound pressure (*)	dB(A)	23	33	53	25	40	57	25	40	57

(E): Eurovent certified performance

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.

7.2- 4-pipe unit



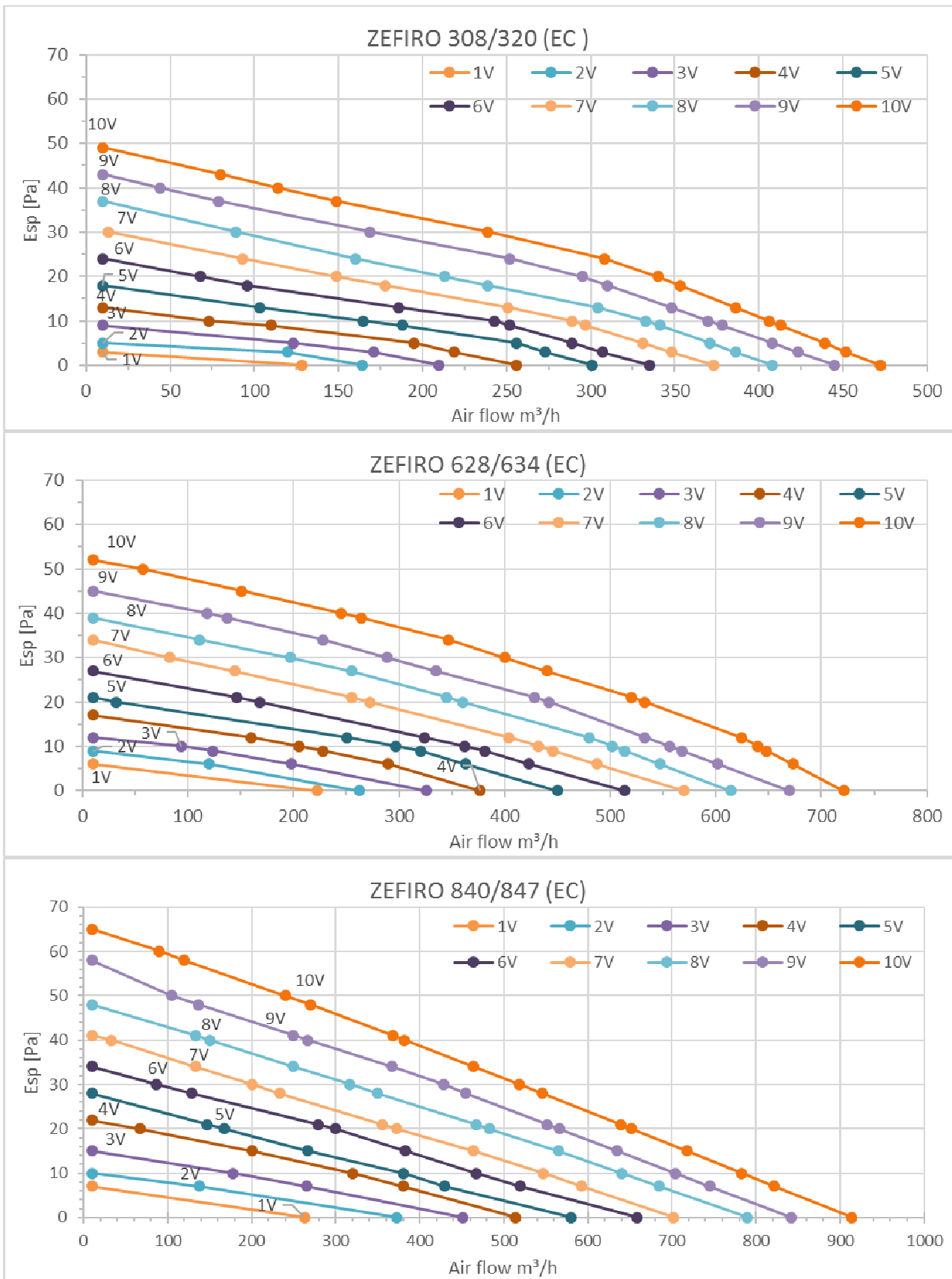
		316 + B1			628 + B1			840 + B1		
		3 rows + 1			3 rows + 1			3 rows + 1		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	130	210	450	250	360	680	300	500	850
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	0.68	0.97	1.64	1.26	1.66	2.57	1.62	2.40	3.49
Sensitive capacity (E)	kW	0.52	0.77	1.36	0.96	1.30	2.11	1.21	1.84	2.77
Water flow rate	l/h	116	168	283	217	286	442	278	412	599
Δp (water) (E)	kPa	2.2	4.2	10.5	3.3	5.4	11.7	6.6	13.2	25.5
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity (E)	kW	0.77	1.06	1.70	1.43	1.84	2.78	1.77	2.49	3.52
Water flow rate	l/h	67	93	149	126	160	242	153	218	307
Δp (water) (E)	kPa	1.2	2.2	5.0	5.9	9.1	18.7	1.5	2.8	5.2
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	4	5	20	4	6	20	5	8	28
Max power draw	A	0.22			0.21			0.27		
SOUND DATA										
Sound power (E)	dB(A)	29	35	53	29	35	53	30	36	54
Sound pressure (*)	dB(A)	20	26	44	20	26	44	21	27	45

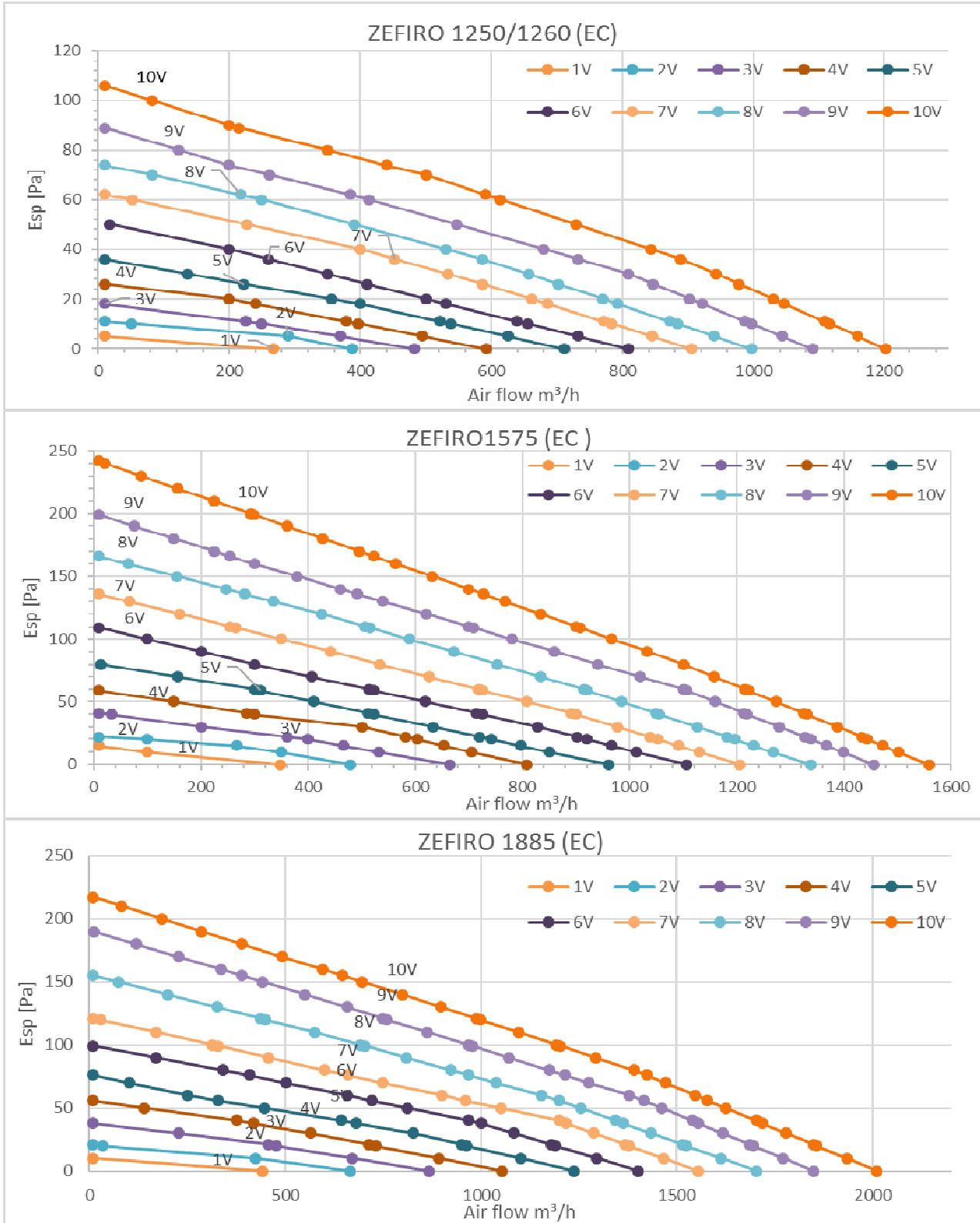
		1250 + B1			1575 + B1			1885 + B1		
		3 rows + 1			4 rows + 1			4 rows + 1		
Speed (Drive voltage)	V	1	3.5	10	1	3.5	10	1	3.5	10
Air flow rate	m ³ /h	300	520	1200	350	750	1560	450	920	2010
COOLING - air 27 °C (dry bulb) , 19 °C w.b. - water inlet 7 °C, outlet 12 °C										
Total capacity (E)	kW	1.62	2.47	4.35	2.06	3.84	6.52	2.67	4.82	8.45
Sensitive capacity (E)	kW	1.21	1.90	3.55	1.53	2.95	5.26	1.97	3.66	6.77
Water flow rate	l/h	278	424	748	355	661	1121	460	828	1453
Δp (water) (E)	kPa	8.6	18.2	49.2	3.1	9.4	23.7	5.8	16.4	44.1
HEATING - air 20 °C - water inlet 65°C, outlet 55°C										
Capacity (E)	kW	1.77	2.56	4.25	2.14	3.59	5.58	2.73	4.45	7.10
Water flow rate	l/h	153	223	371	187	313	486	238	387	618
Δp (water) (E)	kPa	2.0	3.9	9.5	3.5	8.6	18.6	6.3	14.7	33.6
MOTOR ELECTRIC POWER DRAW										
Power draw (E)	W	5	11	70	6	22	183	8	25	165
Max power draw	A	0.53			1.10			1.29		
SOUND DATA										
Sound power (E)	dB(A)	32	42	62	34	49	66	34	49	66
Sound pressure (*)	dB(A)	23	33	53	25	40	57	25	40	57

(E): Eurovent certified performance

(*) = the sound pressure levels are lower than power levels by 9 dB(A) for a 100 m³ space and a reverberation time of 0.5 sec.

ZEFIRO

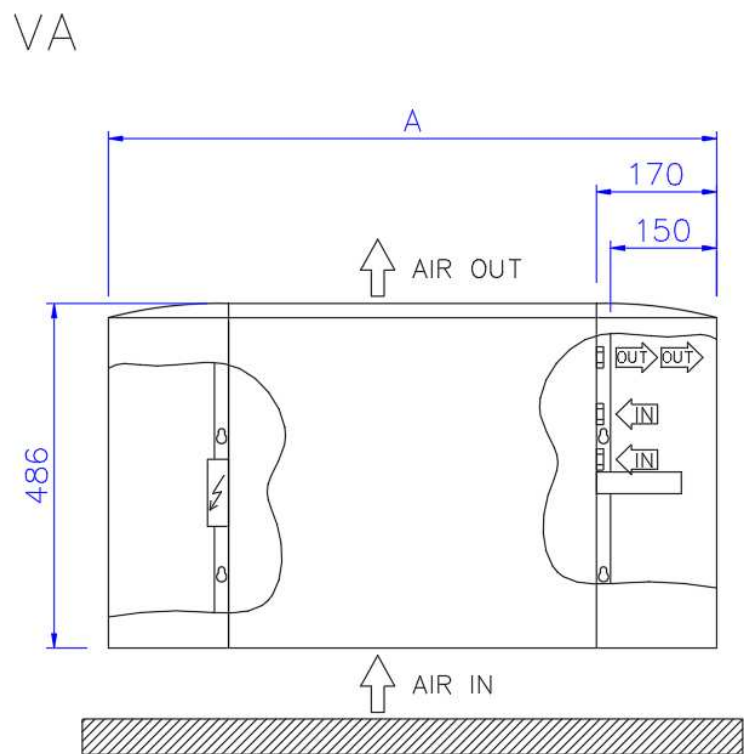
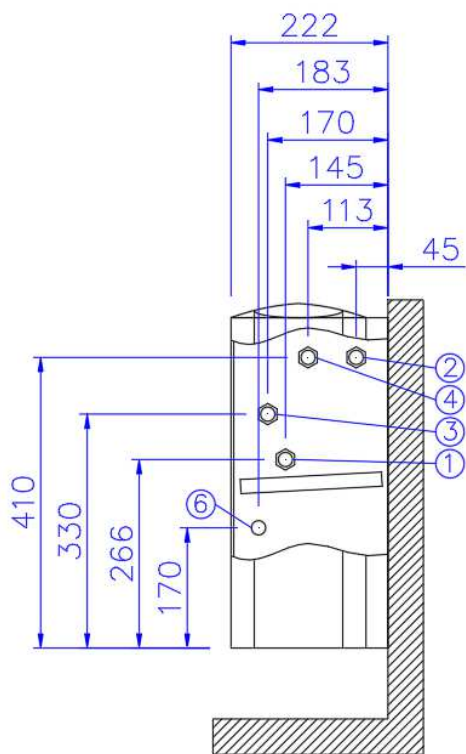


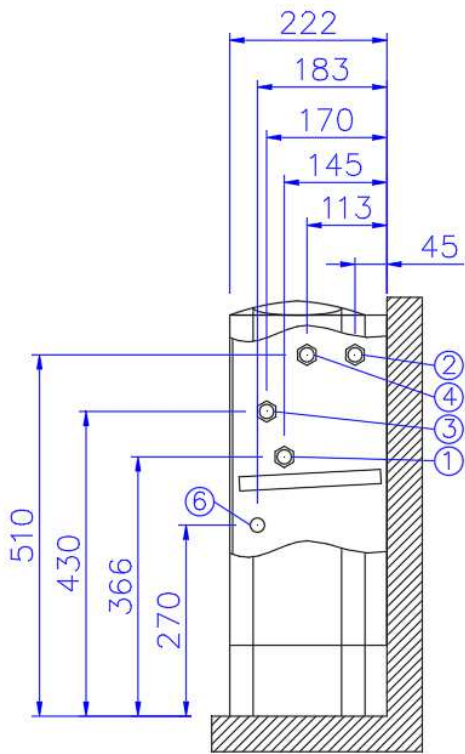


8-DIMENSIONS AND WEIGHTS

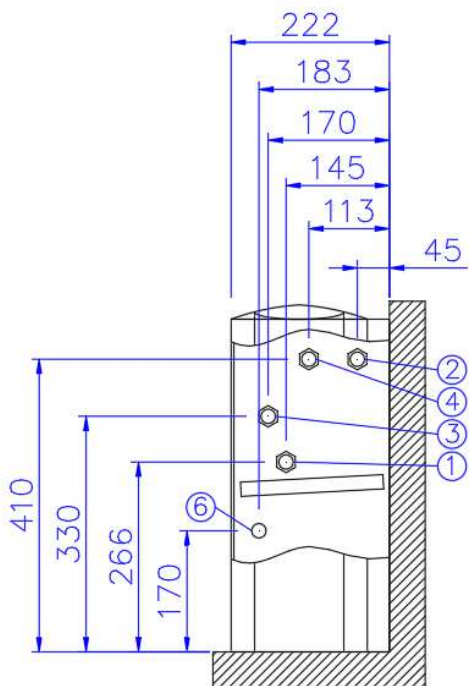
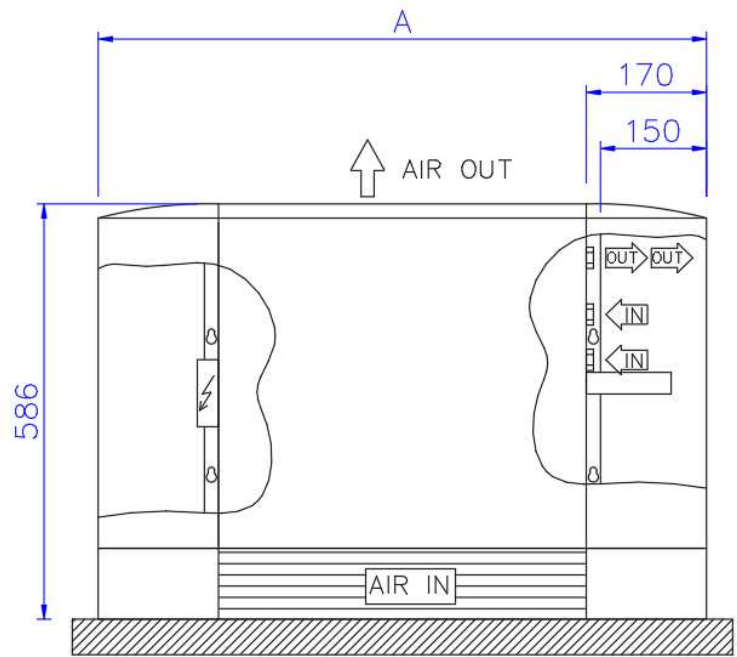
8.1-Dimensions of versions with vertical cabinets

1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output
5 - horizontal units condensate drain	6 - vertical units condensate drain

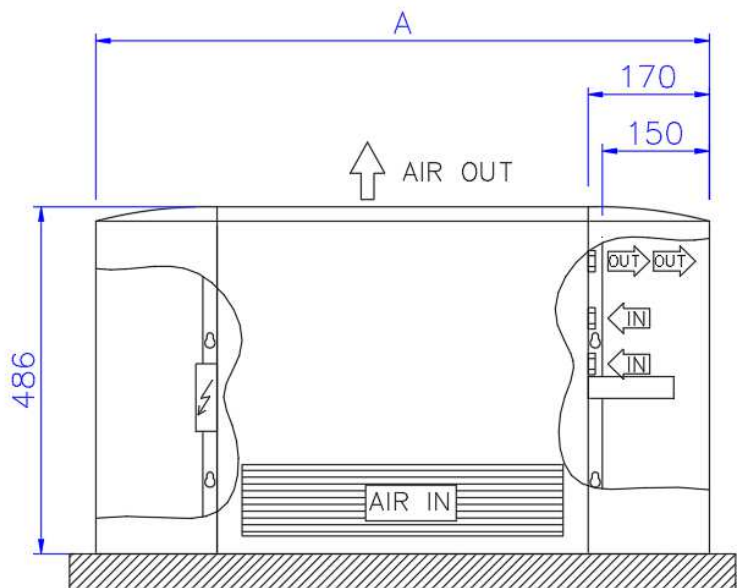




VB

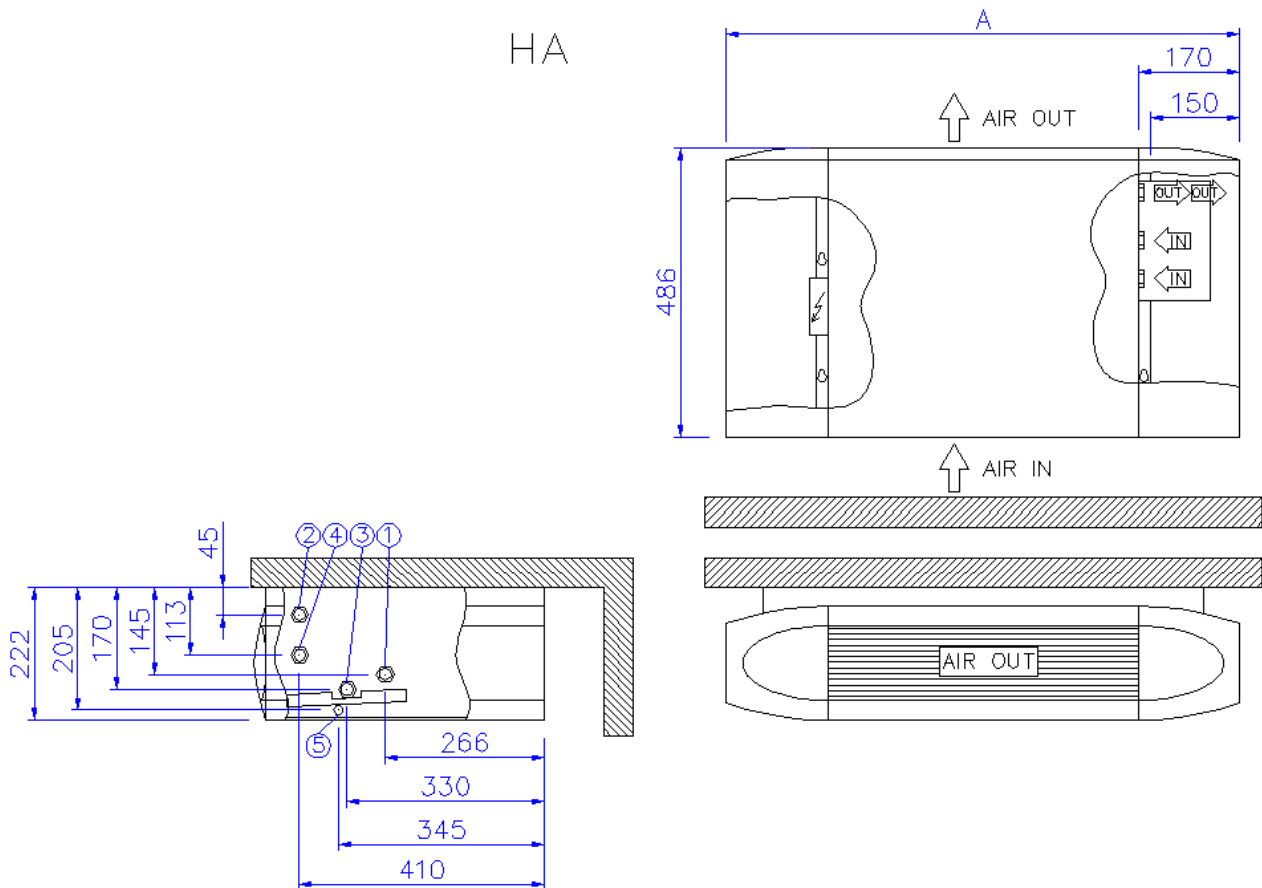


VL

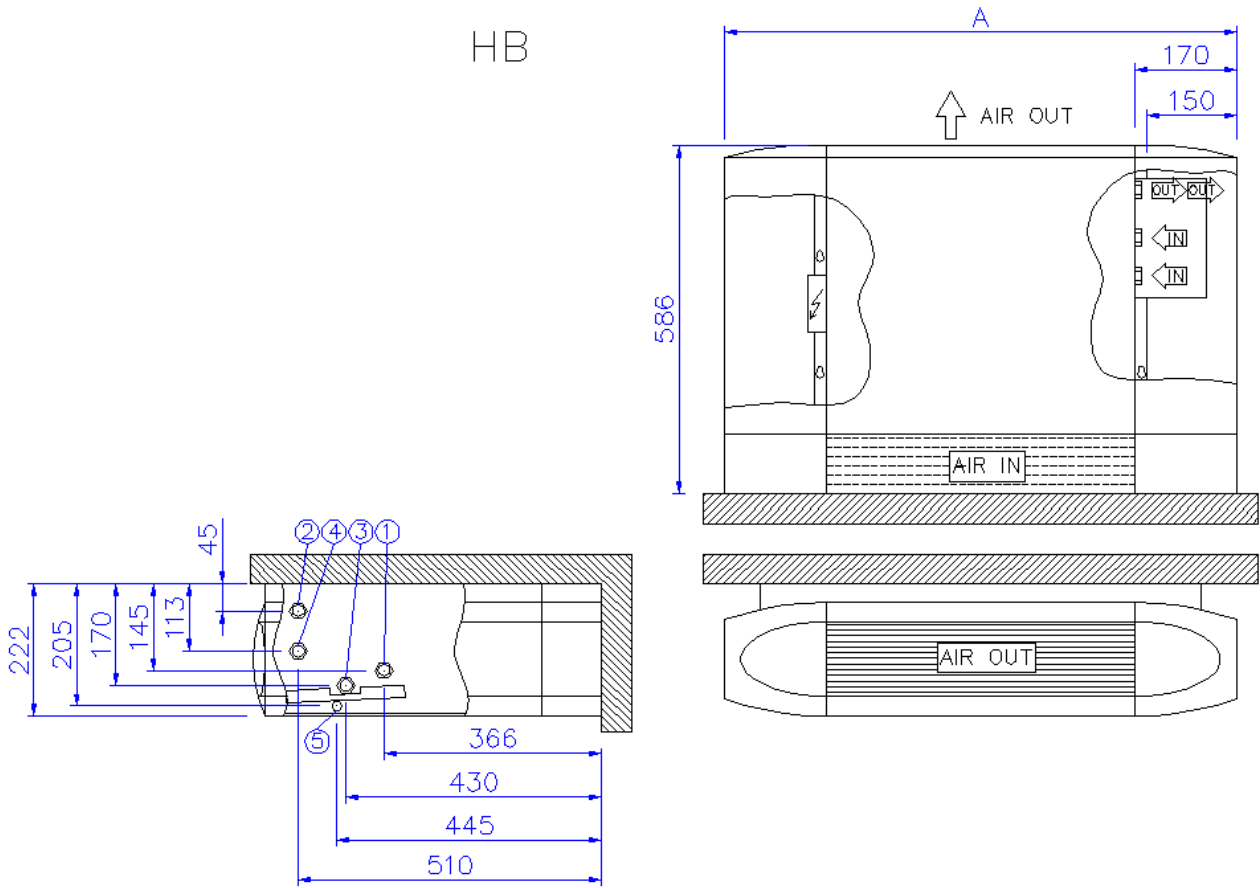


8.2-Dimensions of versions with horizontal cabinets

1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output
5 - horizontal units condensate drain	6 - vertical units condensate drain

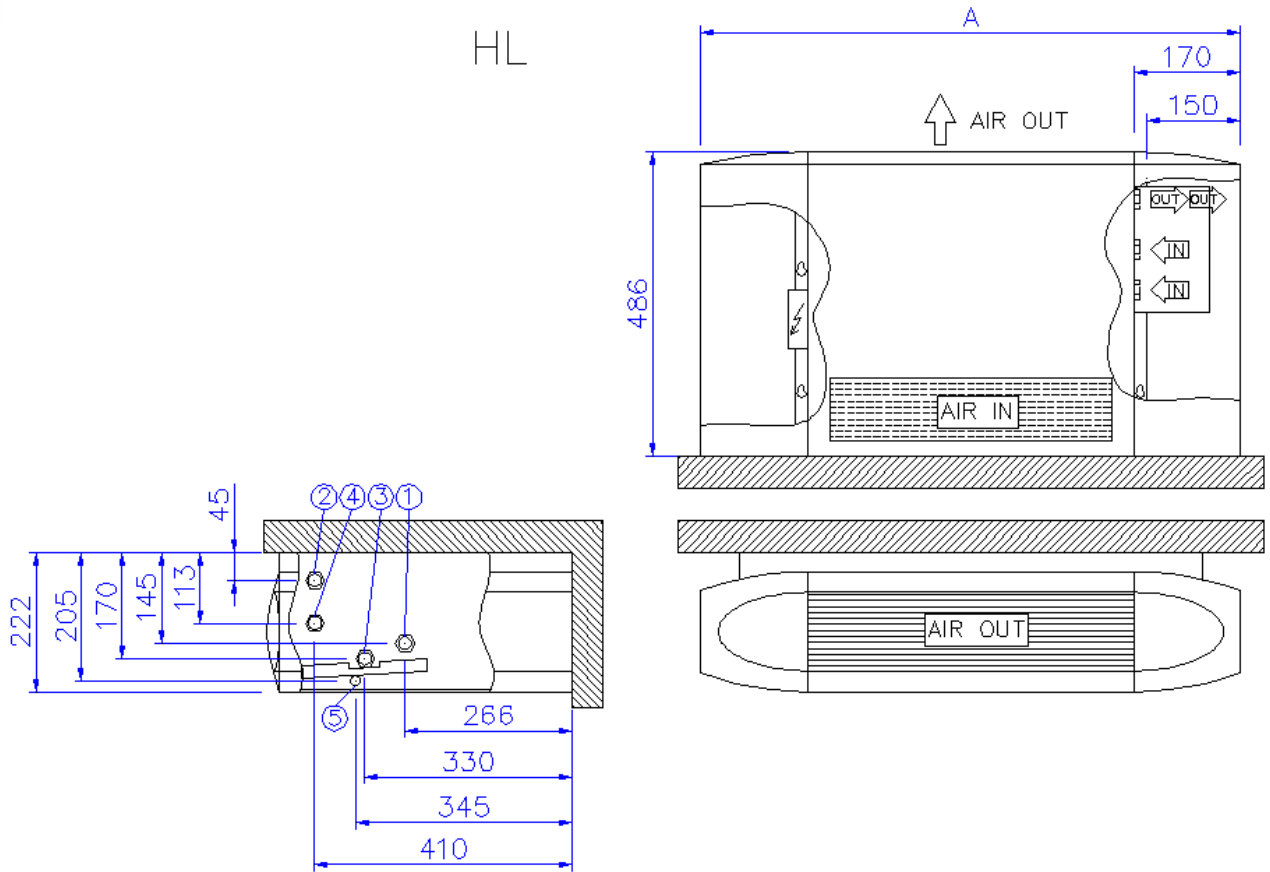


HB



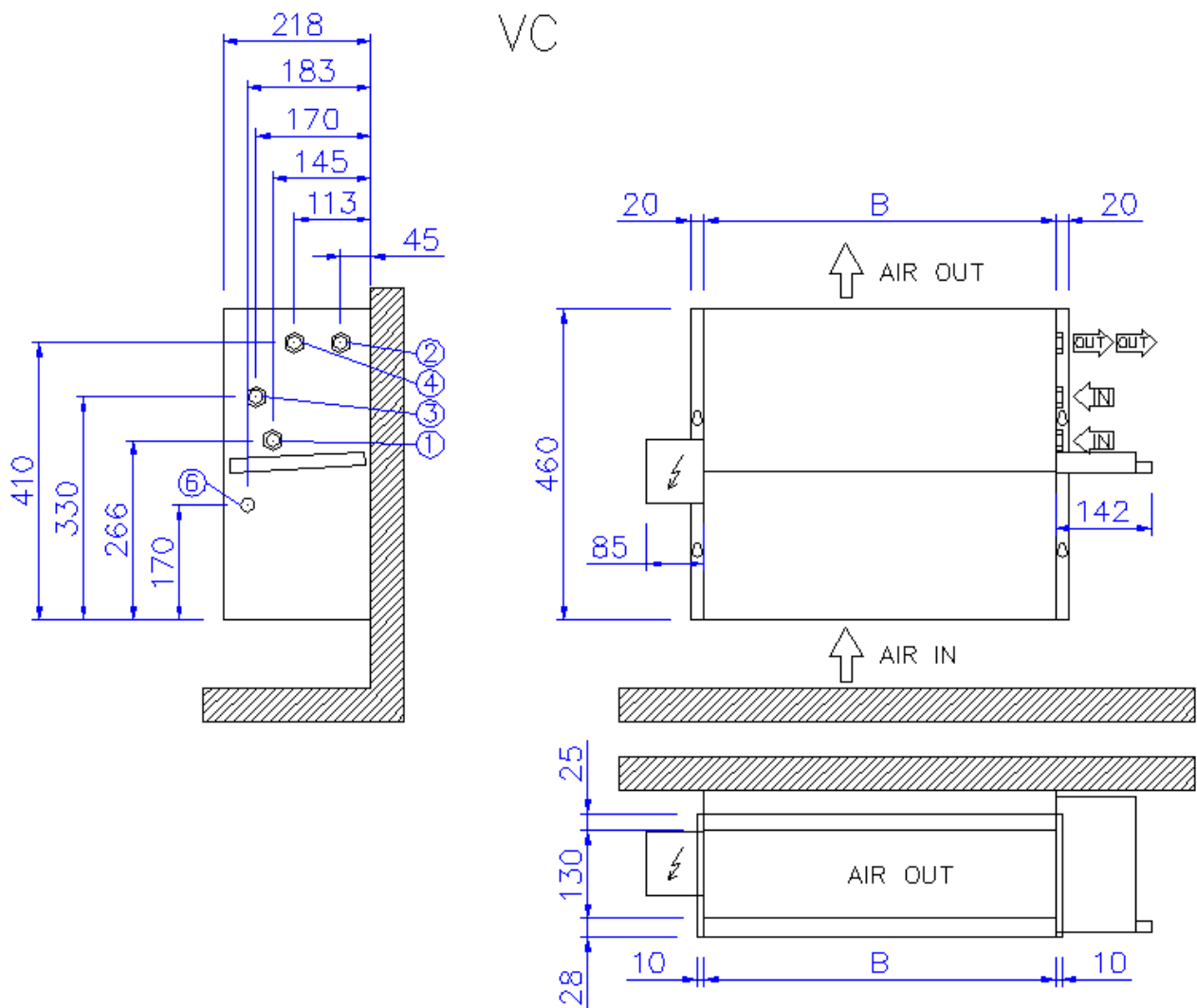
ZEFIRO

HL

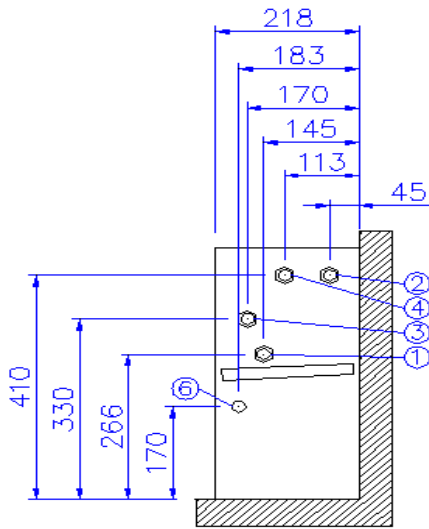


8.3-Dimensions of recessed mounting vertical versions

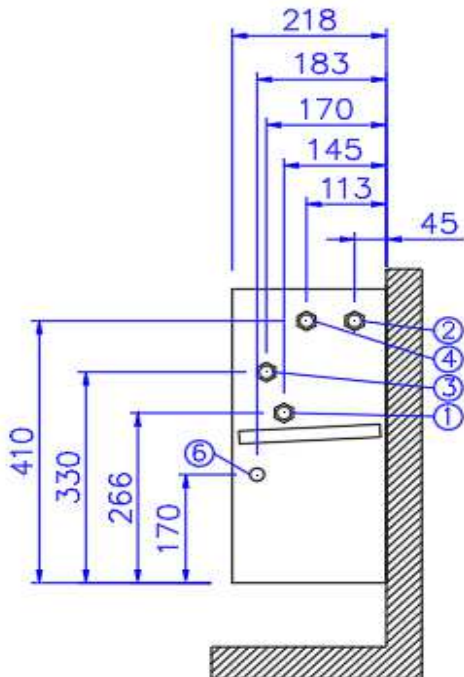
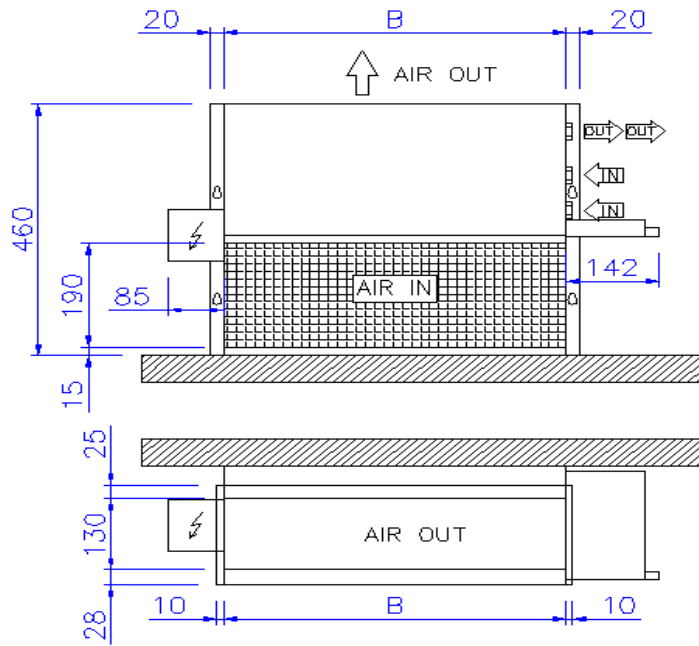
1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output
5 - horizontal units condensate drain	6 - vertical units condensate drain



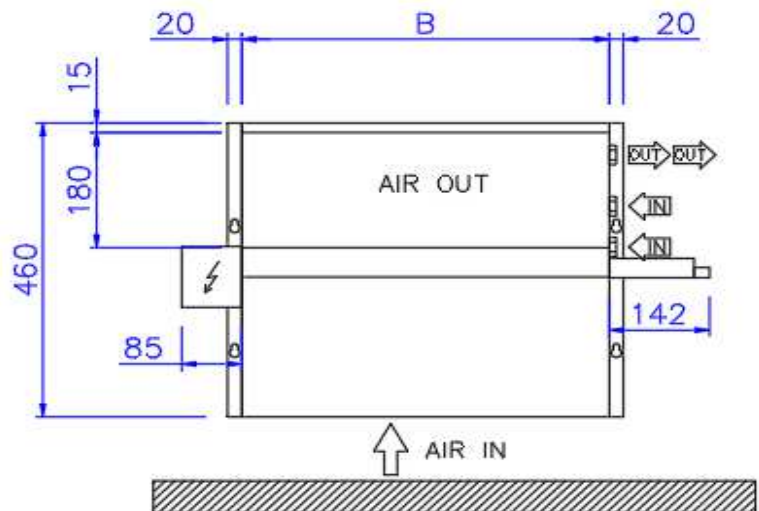
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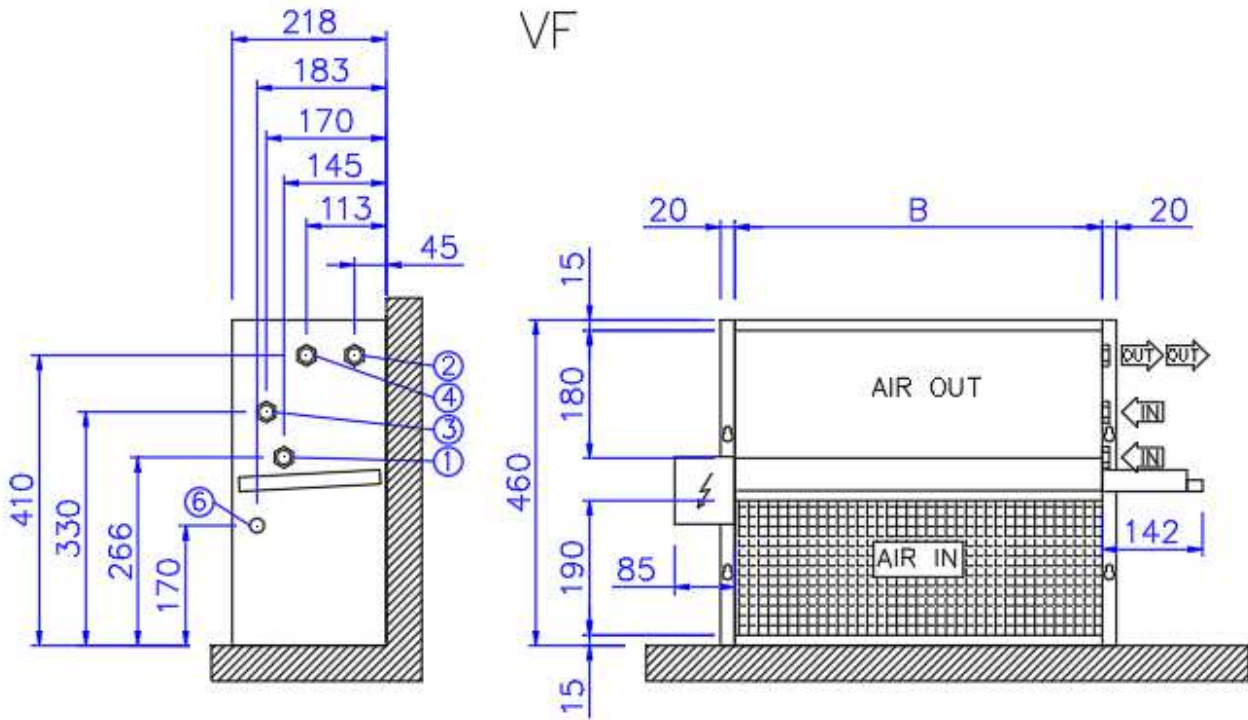


VD



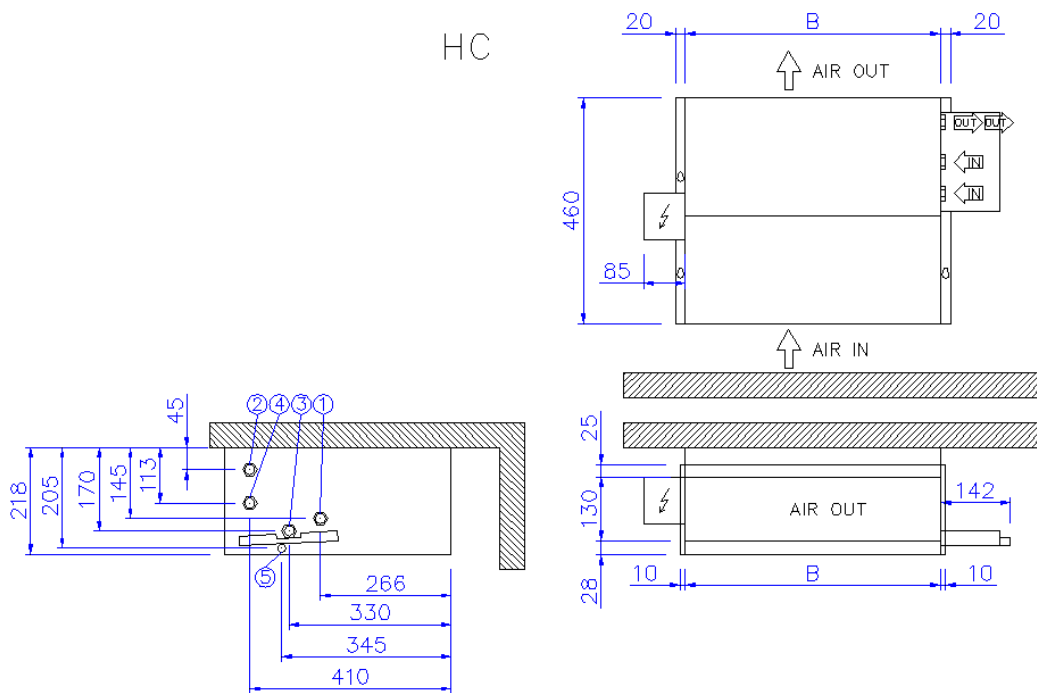
VE

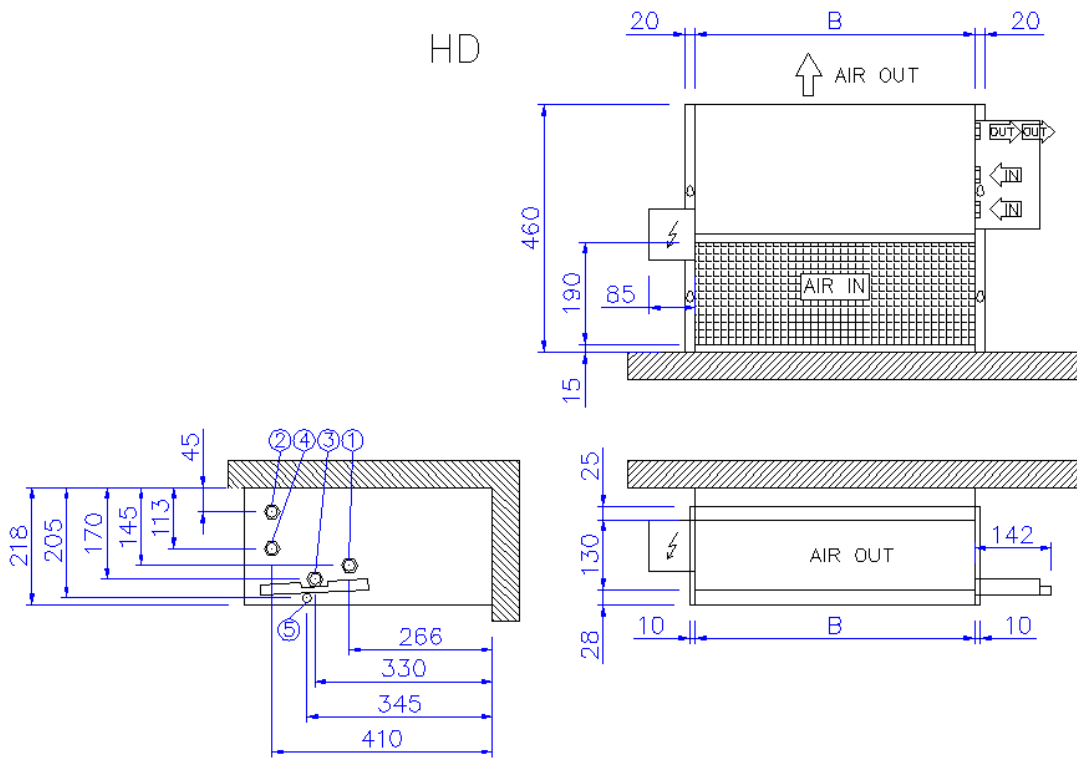




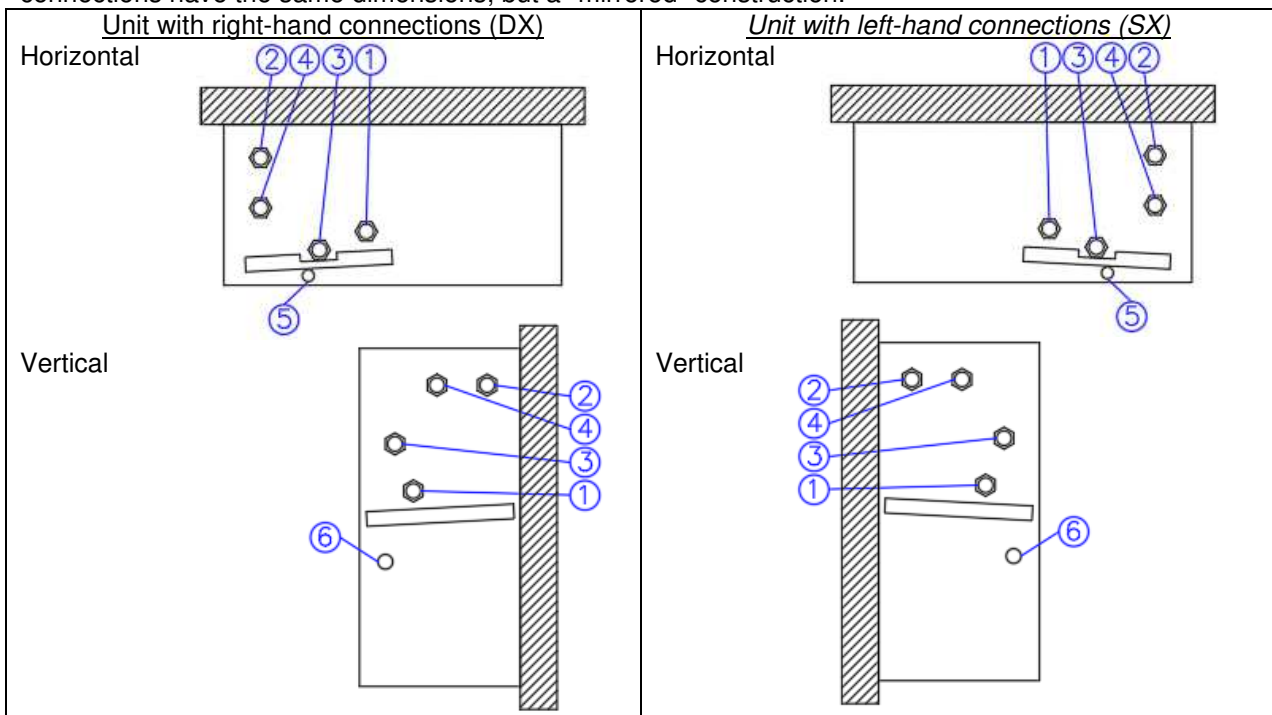
8.4-Dimensions of recessed mounting horizontal versions

1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output
5 - horizontal units condensate drain	6 - vertical units condensate drain

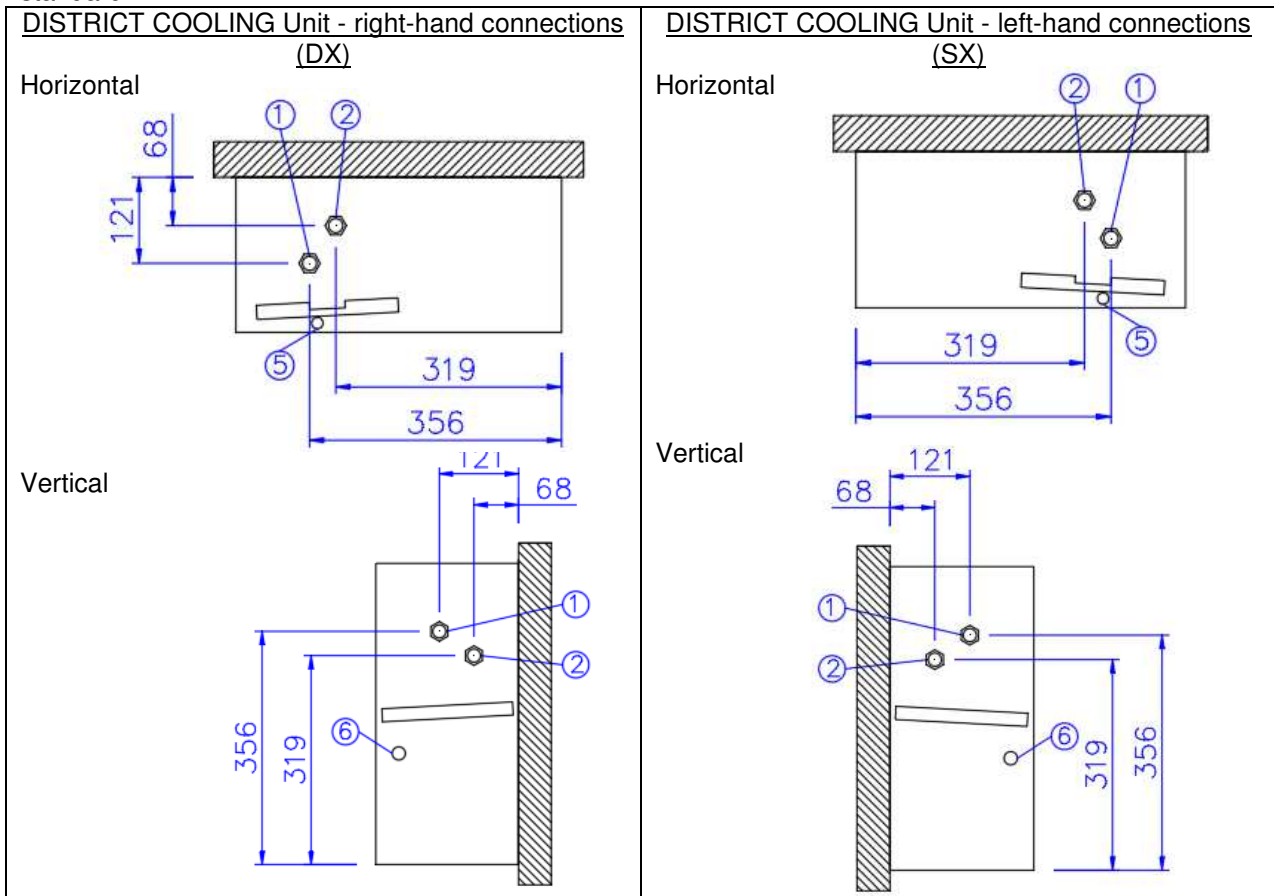




NOTE: The above drawings refer to units with right-hand (R.-H.) connections. The units with left-hand (L.-H.) connections have the same dimensions, but a "mirrored" construction.



Unit with District Cooling coils have connectors in the positions shown in the drawings below, i.e. non-standard.



DIMENSIONS		308/320	628/634	840/1260	1575	1885
A	mm	860	1120	1380	1640	1900
B	mm	520	780	1040	1300	1560
1 - Main coil INPUT	"	1/2"				
2 - Main coil OUTPUT	"	1/2"				
3 - Auxiliary coil INPUT	"	1/2"				
4 - Auxiliary coil OUTPUT	"	1/2"				
5 - horizontal condensate drain	mm	d.16				
6 - vertical condensate drain	mm	d.20				

WEIGHTS			308	316	320	628	634
Unit weight	(1)	kg	14	15	16	19	20
	(2)	kg	16	17	18	22	23
Main coil inside volume		litres	0.52	0.77	1.02	1.19	1.59
Auxiliary coil inside volume		litres	0.26	0.26	0.26	0.40	0.40

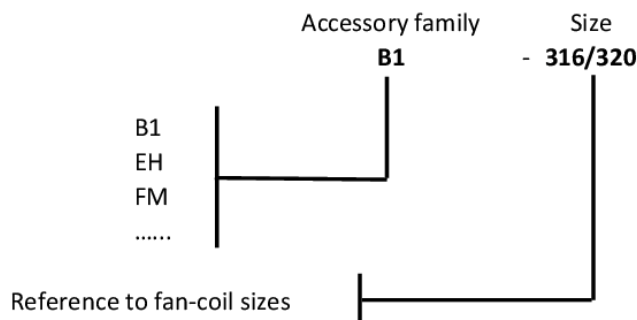
WEIGHTS			840	847	1250	1260	1575	1885
Unit weight	(1)	kg	23	24	23	24	29	33
	(2)	kg	28	29	28	29	35	39
Main coil inside volume		litres	1.62	2.16	1.62	2.16	2.73	3.30
Auxiliary coil inside volume		litres	0.54	0.54	0.54	0.54	0.68	0.82

- (1) Unit weight without cabinet
- (2) Unit weight with cabinet

9-ACCESSORIES

HYDRAULIC ACCESSORIES		
1	B1	Auxiliary coil for 4-pipe systems
2	V	Valve (for the VBD dynamic balancing valve, see the specific manual)
3	PSCZE	Condensate drain pump
4	DET	Flexible hoses with ball valves
ELECTRICAL ACCESSORIES		
5	TR24	Transformer for modulating valve
6	ETBN-2.5A	Power relay board for master-slave
7	SC3	Three-speed EC motor control board
8	EH - EHR	Electrical heater - relay for electrical heaters
AERAUIC ACCESSORIES		
9	FRAB	Return plenum with filter extraction from below
10	FM	Flange for duct connection (delivery or return)
11	P90	90° plenum (delivery or return)
12	RT	Telescopic coupling (delivery or return)
13	PS	Plenum with circular connectors (delivery or return)
14	PA90GF	90° plenum with return grille and filter
15	GM2	Dual adjustment delivery grille
16	GR	Return grille
17	COIB	Insulation for delivery plenum
ACCESSORIES FOR INSTALLATION		
18	CCM/VF	Outer casing for VF unit
19	MPK/VF	Panel for outer casing of VF unit
20	PPV	Rear panel for VA + CZ and VB vertical unit
21	PPHA	Rear panel for HA horizontal unit
22	PPHB	Rear panel for HA horizontal unit
23	PPVL	Rear panel for VL vertical units
24	PPHL	Rear panel for HL horizontal units
25	CZ	Pair of feet for VA and HA units
26	CZF	Pair of feet with opening intake panel
FILTRATION		
27	FAG3	Synthetic fibre filter class ISO COARSE (ISO 16890)
28	FA/SAN	Synthetic fibre filter class ISO COARSE (ISO 16890) with Sanitized treatment

Unless otherwise specified, the ordering codes for the accessories consist of the accessory code followed by the fan-coil size:



9.1 - Auxiliary coil (B1)

The single-row auxiliary coil (B1) is used for heating purposes in 4-pipe systems. Feeding this coil with chilled water is not allowed, because it has no condensate collection tray. For correct management of heating and cooling, in 4-pipe systems it is necessary to provide motorized valves on both coils (main and auxiliary) ensuring that only one of the two coils is active.

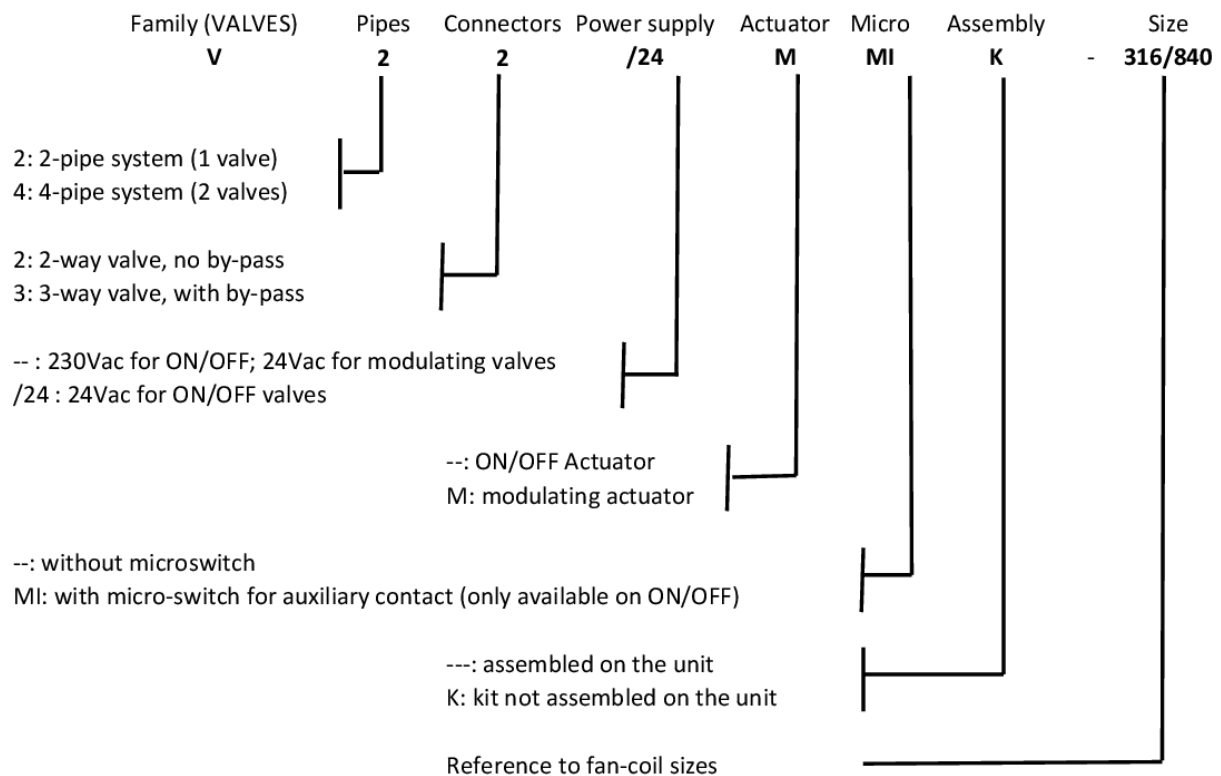
This accessory is not compatible with the District Cooling main coil and with the electric heater accessory (EH)

9.2-Valves (V)

Servo-controlled valves should be used to prevent the formation of condensate on the surface of the unit when the fan has stopped.

The valves can be supplied assembled on the unit or as kits (disassembled components).

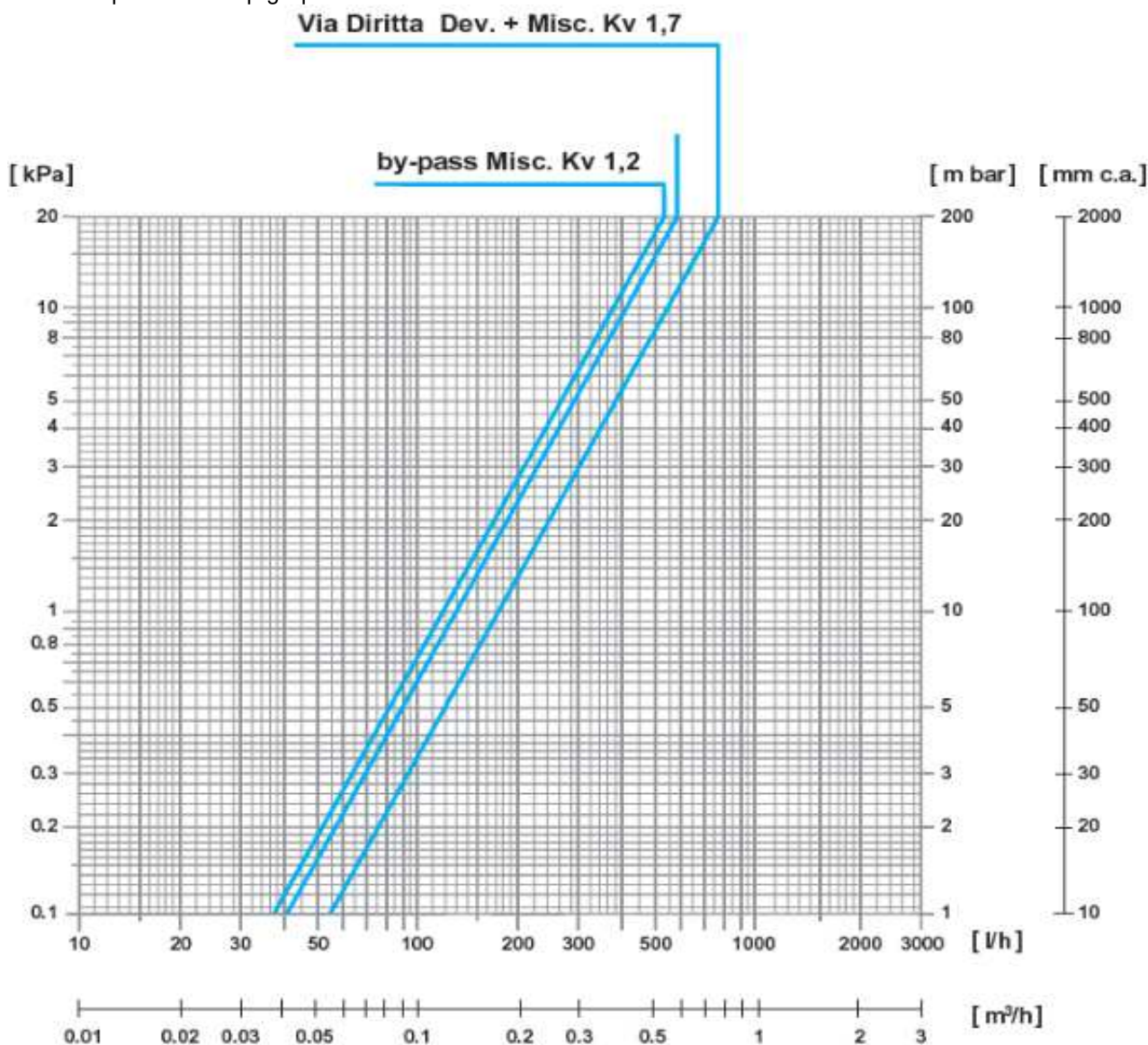
The auxiliary condensate collection tray is supplied with the unit as part of the standard equipment, without extra costs (ADPZ).



	VALVE FOR MAIN COIL (308/847)	VALVE FOR MAIN COIL (1250/1885)
	VALVE FOR AUXILIARY COIL (308/1885)	
GENERAL CHARACTERISTICS		
Connections size	1/2"	3/4"
Kv (2-way valve)	1.7	2.5
Kv (3-way valve, direct flow)	1.7	2.5
Kv (3-way valve, by-pass)	1.2	1.6
Max differential pressure	2.0bar	1.0bar
Nominal pressure	PN16	
Water temperature	5 – 110°C	
ACTUATOR ON/OFF		
Power supply	230V-50Hz (24V-50Hz on request)	

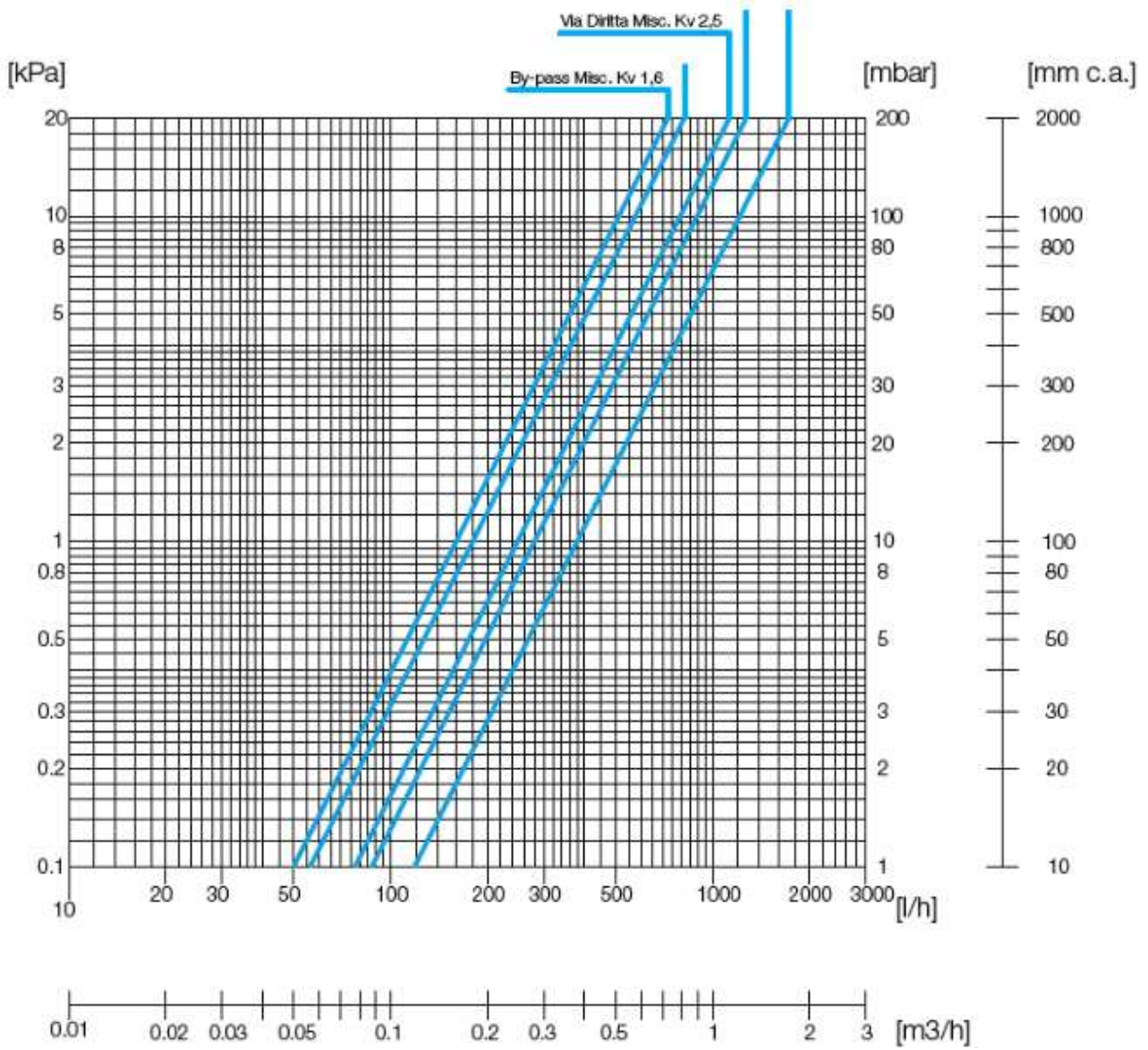
Absorbed power	2.5W
Stroke time	180s
Characteristic (valve+actuator)	N.C. (Normally Closed)
Protection	IP44
MODULATING ACTUATOR	
Power supply	24Vac
Absorbed power	1.5W
Stroke time	8S
Control signal	0/10V
Control signal impedance	100k Ohm
Protection	IP43

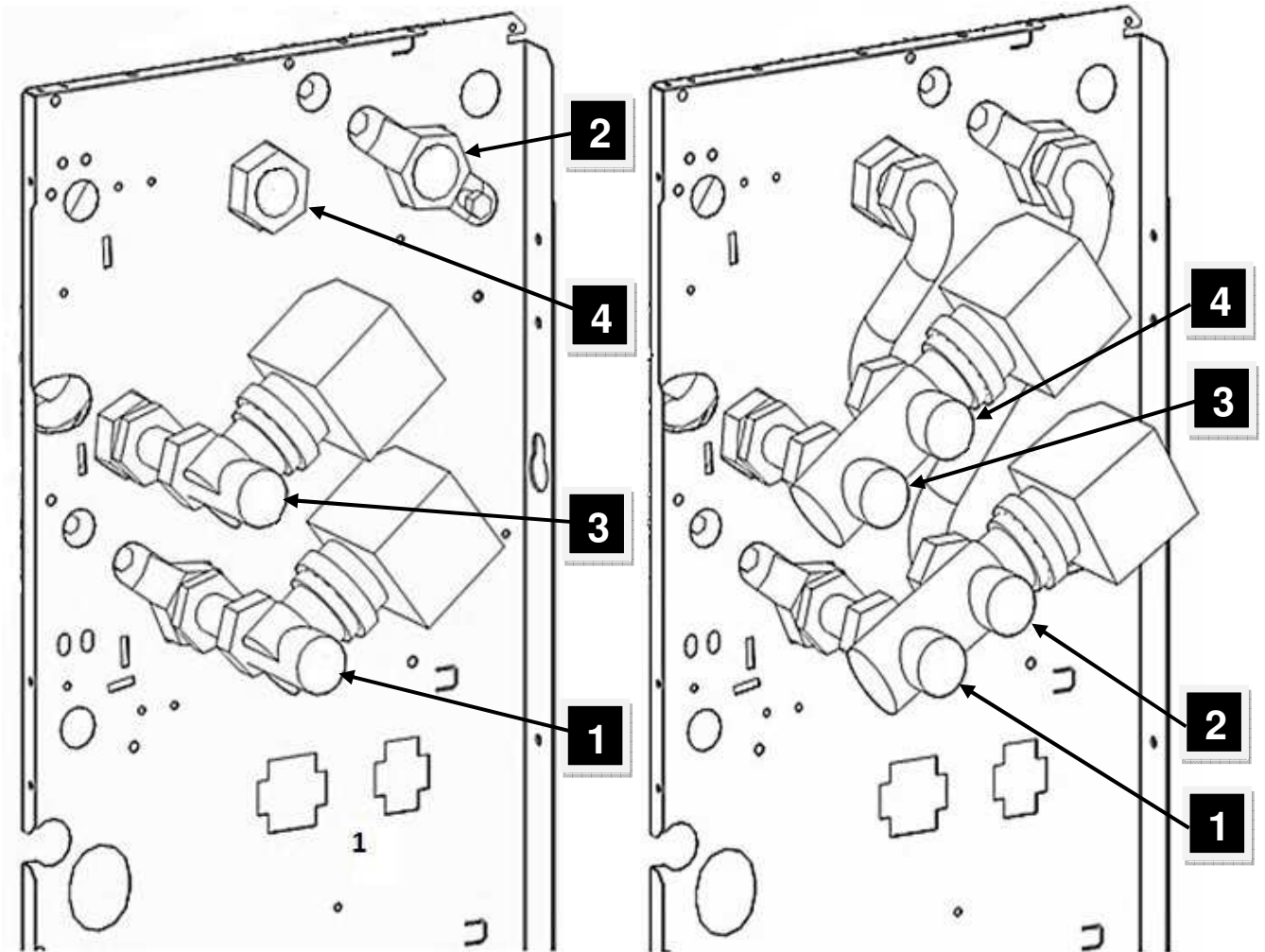
1/2" valve pressure drop graph



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3/4" valve pressure drop graph



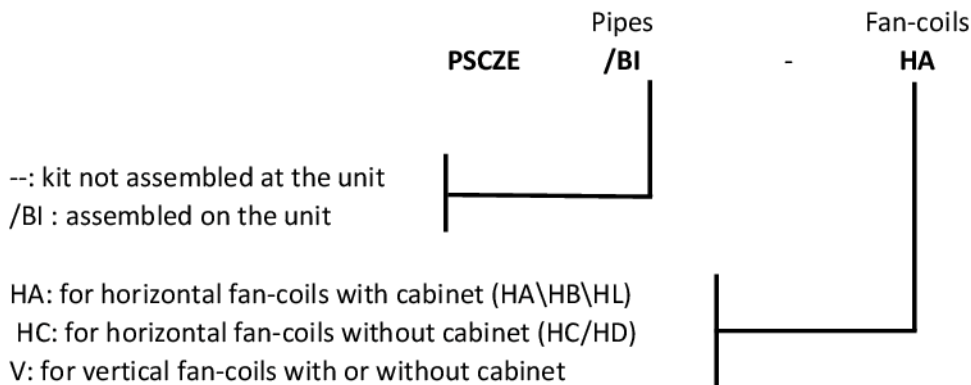


1 - main coil input	2 - main coil output
3 - auxiliary coil input	4 - auxiliary coil output

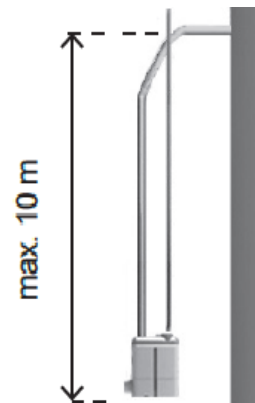
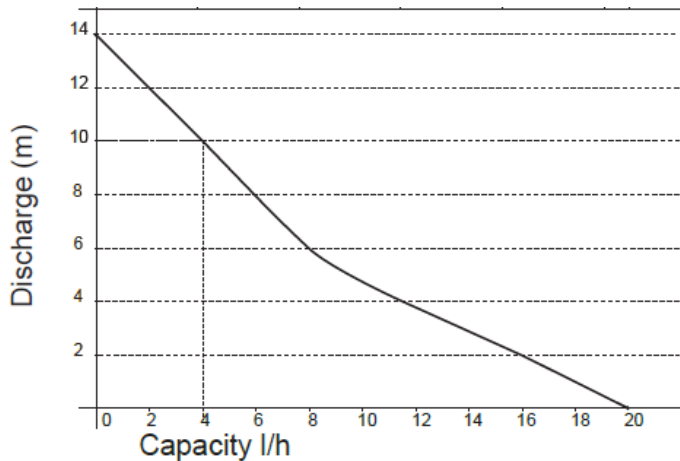
Dynamic balancing valves (VBD) are also available as accessories; for information please refer to the specific technical manual.

9.3-Condensate drain pump (PSCZE)

The condensate drain pumps can be supplied assembled on the unit or as kits (disassembled components). For horizontal units with cabinet (models HA, HB, HL), the condensate drain pump accessory assembled on the unit (PSCZE/BI-HA) is incompatible with the presence of the auxiliary heating coil for 4-pipe systems. In this case, it will be necessary to order a drain pump as an unassembled kit and install it on the outside of the unit.

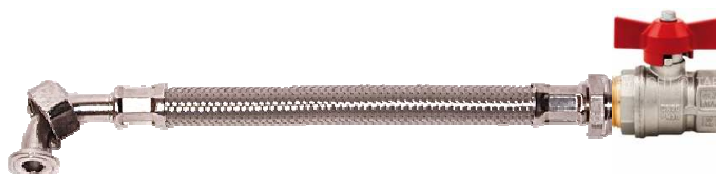


Maximum water flow rate	20 l/h
Maximum drainage height	10m (4 l/h)
Sound pressure at 1 m	23 dB(A)
Power supply	230V – 50/60Hz
Alarm microswitch	Resistive NC 8A 250V
Circuit breaker	90°C (automatic reset)
Protection	IP54

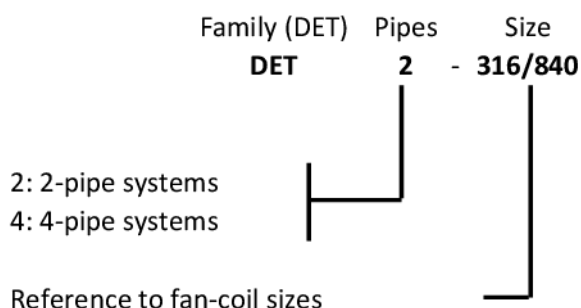


9.4-Flexible hoses with ball valves (DET)

The flexible hoses with ball valves are supplied as kits (disassembled components). Their use simplifies the hydraulic connection of fan-coils and, thanks to the ball valves, allows for valve and coil maintenance without having to completely drain the system.



External metal braid material	AISI304 stainless steel
Internal material	EPDM
Fittings and elbows material	Brass, chrome-plated brass, copper
Ball valve material	Chrome plated brass
Maximum working pressure	10 bar
Water temperature	5 - 85°C
Hose length	190mm
Hose length + valve	240mm (+/- 5)



9.5-Transformer for modulating valves (TR24)

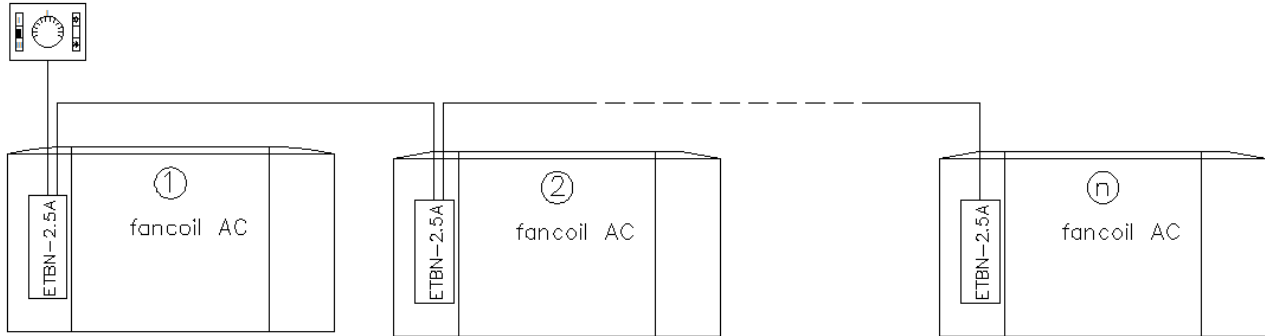
The TR24 accessory is a 230Vac - 24Vac 20VA transformer needed to power the modulating valves. In the event that there are two modulating valves for the same unit (4-pipe system), only one transformer is sufficient to supply both valves.

TR24 is available in one size, suitable for all unit sizes.

9.6-Power relay board for master-slave (ETBN-2.5A)

The power relay board (ETBN-2.5A) is needed to control more than one unit with AC motor (three speeds) with a single control. In this case, one ETBN-2.5A is required for each unit. This board is also necessary to control a single unit, when the control is not able to carry the highest current draw by the motor. For more information on this accessory, please refer to its specific technical manual.

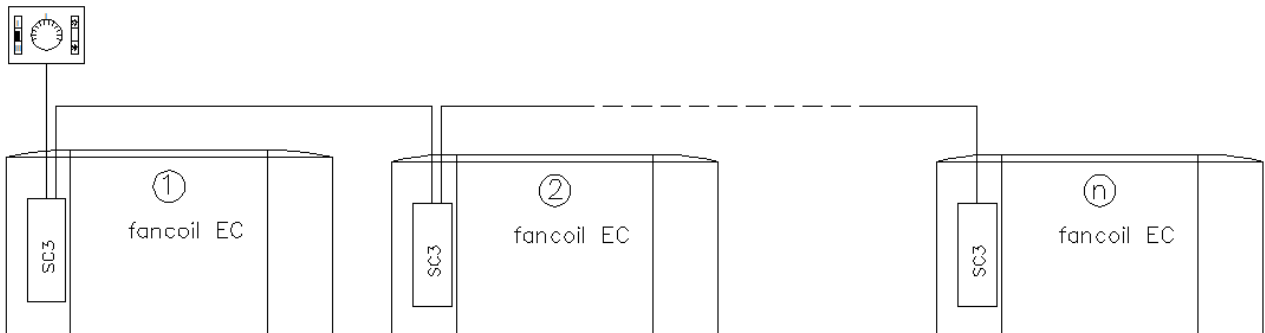
The ETBN-2.5A board is available in one size, suitable for all unit sizes.



9.7-Three-speed EC motor control board (SC3)

The SC3 board allows an EC motor (with 0/10V signal) to be controlled through a common three speed control for AC motors. It is possible to control several (up to 20) units equipped with SC3 through a single control. For more information on this accessory, please refer to its specific technical manual.

The SC3 board is available in one size, suitable for all unit sizes.



9.8-Electrical heater (EH) and relay (EHR)

The electric heaters are made of aluminium and are equipped with a manual reset safety thermostat against overheating. They are housed inside the unit downstream from the coil.

This accessory is not compatible with auxiliary coil accessories.

To control the heaters, it is recommended to use the EHR (power relay) accessory.

We recommend not to use the electric heater if the main coil is fed chilled water or if there is humidity or condensation on the coil or heater. Before turning on the electric heater, make sure that the cooling system is turned off and that the valves of the main coil are closed.

For correct dissipation of the heat generated by the electric heaters, it is recommended to never use the minimum fan speed and to use instead the maximum and medium speed settings (to be chosen also in relation to the pressure drops in any ducts). After the heaters are turned off, it is recommended to leave the fan on for a few minutes (at least two minutes) to allow the electric heaters to cool. Otherwise the manufacturer will not be held responsible for any damage to and/or malfunction of the unit.

	308/320	628/634	840/1260	1575/1885
Power	1.0 kW	1.25 kW	2.0 kW	3.0 kW
Power supply	230V-50Hz single-phase			
No. of stages	1	1	1	1
Power relays to be used	EHR-8A	EHR-8A	EHR-20A	EHR-20A

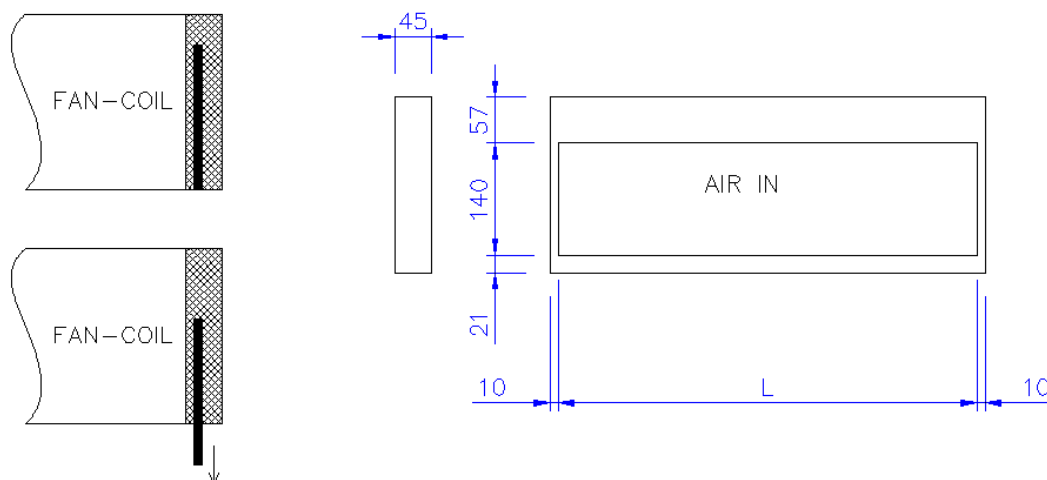
Two relay sizes are available, according to the table below:

	EHR-8A	EHR-20A
Maximum contact current (resistive load)	8 A	20 A
Coil power supply	230V-50Hz single-phase	
No. of contacts	2	4

9.9-Return plenum with filter extraction (FRAB)

The return plenum with filter extraction is necessary to channel the return flow. The filter can be housed internally, with extraction only from the bottom.

It can be used at the return end of the HC and VC model



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560

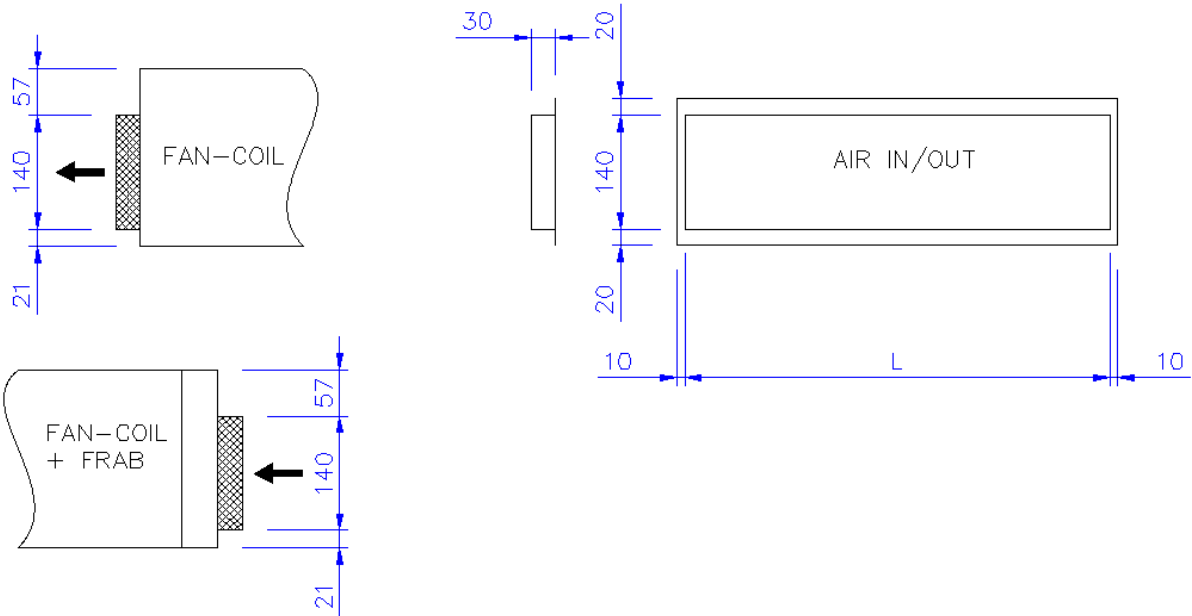
9.10-Flange for duct connection (FM)

The flange for FM duct connection can be used on the delivery or return section of the following models:

Delivery: HC – VC – HD – VD

Return: HC - VC (with FRAB)

If used on the return end, it is mandatory to interpose the FRAB accessory between the unit and the FM flange.



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560

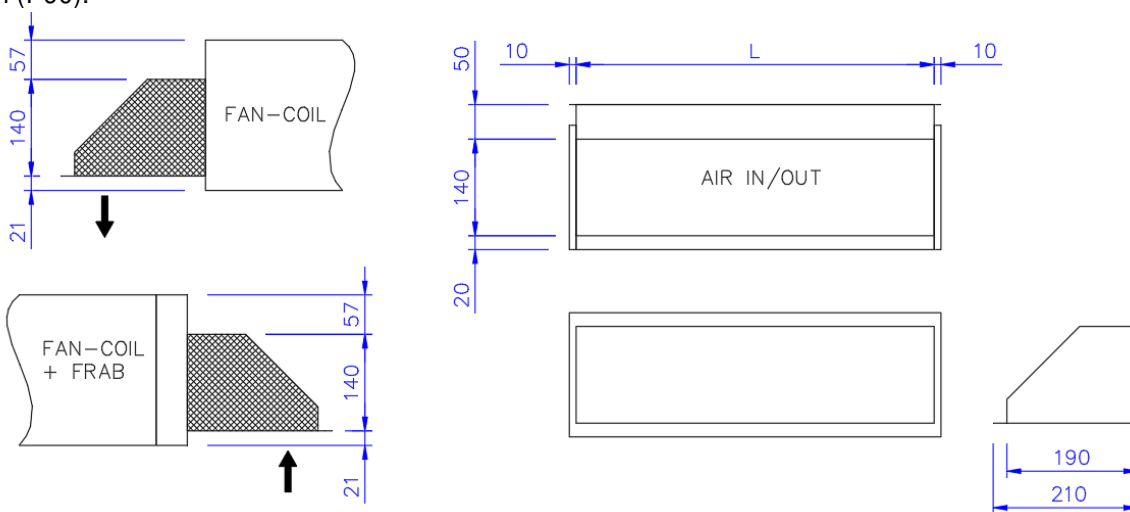
9.11-90° Plenum (P90)

The 90° plenum (P90) can be used on the delivery or return section of the following models:

Delivery: HC – VC – HD – VD

Return: HC - VC (with FRAB)

If used on the return end, it is mandatory to interpose the FRAB accessory between the unit and the 90° plenum (P90).



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560

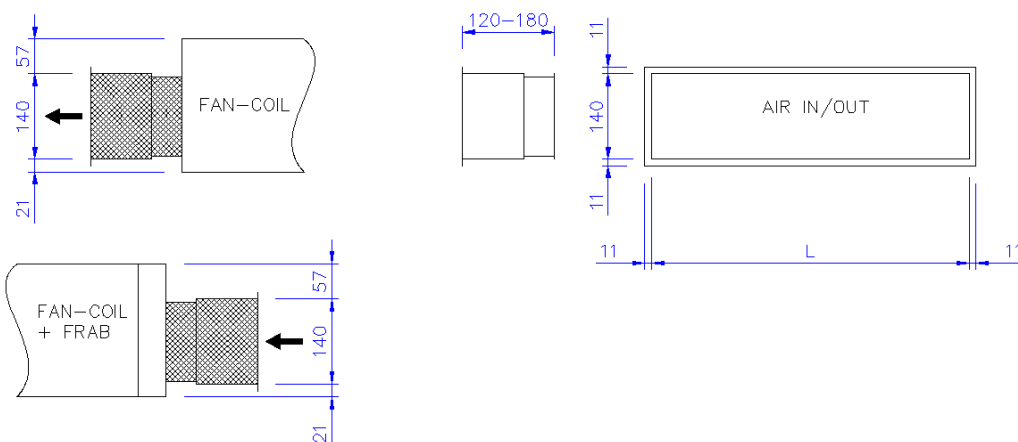
9.12-Telescopic coupling (RT)

The telescopic coupling (RT) can be used on the delivery or return section of the following models:

Delivery: HC – VC – HD – VD

Return: HC - VC (with FRAB)

If used on the return end, it is mandatory to interpose the FRAB accessory between the unit and the RT coupling.



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560

9.13-Plenum with spigot (PS)

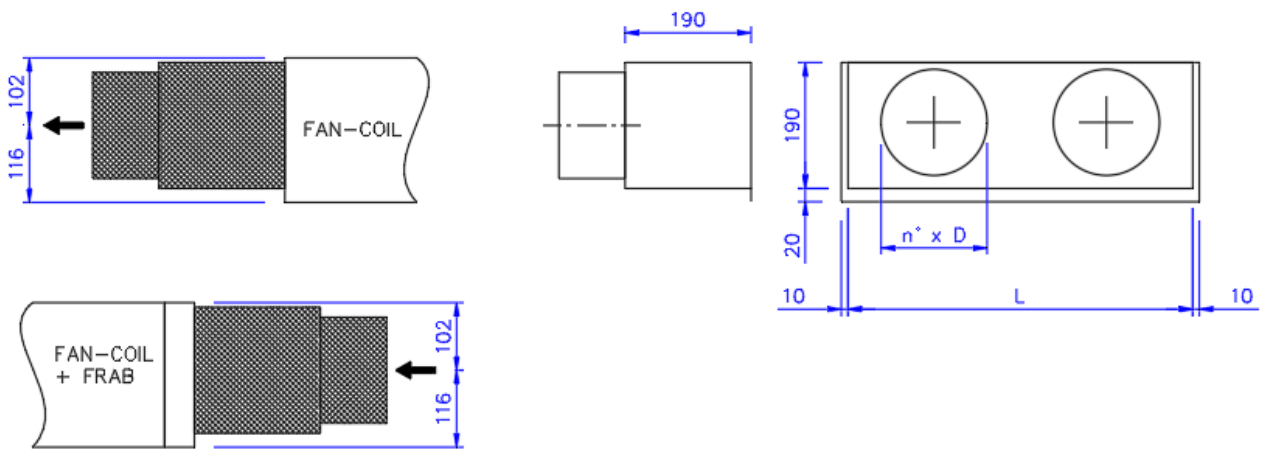
The plenum with spigot (PS) can be used on the delivery or return section of the following models:

Delivery: HC – VC – HD – VD

Return: HC - VC (with FRAB)

If used on the return end, it is mandatory to interpose the FRAB accessory between the unit and the PS plenum.

The flared sleeves are of the type suitable for connecting flexible hoses for conditioning systems, therefore the actual outside diameter of the sleeve is approximately 5mm smaller than the nominal inside diameter of the pipe to be connected.



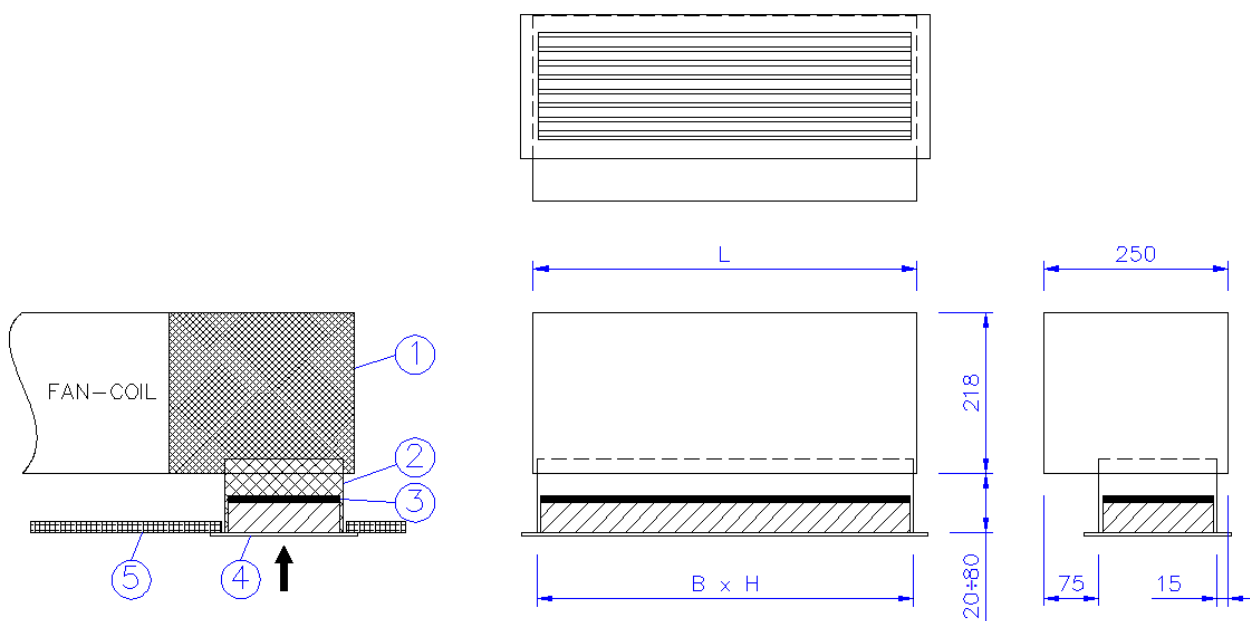
Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560
n. x D (mm)	1 x ø160	2 x ø160	3 x ø160	4 x ø160	5 x ø160
D = nominal inside diameter of the hose to be connected					

9.14-90° plenum with return grille and filter (PA90GF)

The 90° return plenum can be applied directly to the unit return end (therefore without having to interpose a FRA) of the HC and VC models. This accessory is a kit consisting of the following components:

- 90° return plenum
- Telescopic return fitting, to adapt to the height of the false ceiling
- Return grille with inspectable filter

1	90° return plenum
2	Telescopic coupling
3	Filter
4	Return grille
5	False ceiling

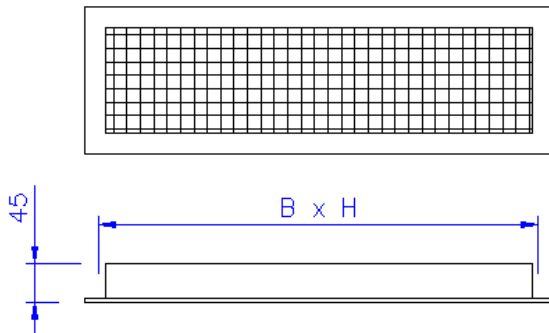


Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	520	780	1040	1300	1560
B x H (mm)	520x160	780x160	1040x160	1300x160	1560x160
B x H: nominal dimensions of the hole					

9.15-Dual adjustment delivery grille (GM2)

The delivery grille is made of RAL 9016 (white) painted aluminium. It is equipped with two rows of fins, which allow for double adjustment of the air flow: vertically and horizontally.

The frame is provided with holes for fixing the grille by means of screws (not supplied) which must be chosen according to the support material.

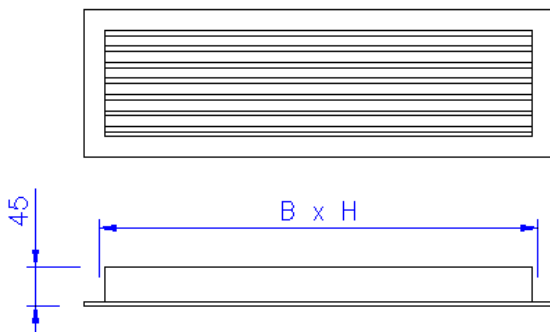


Fan-coil size	308/3016	628/634	840/1260	1575	1875
B x H (mm)	520x140	780x140	1040x140	1300x140	1560x140
B x H: nominal dimensions of the hole					

9.16-Return grille (GR)

The return grille is made of RAL 9016 (white) painted aluminium. It has fixed horizontal fins, making the inside of the duct barely visible.

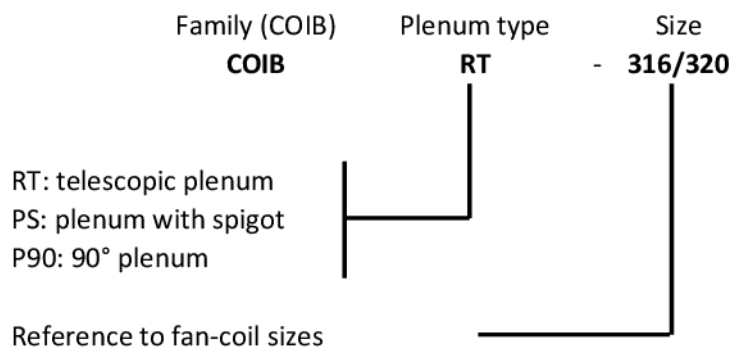
The frame is provided with holes for fixing the grille by means of screws (not supplied) which must be chosen according to the support material.



Fan-coil size	308/3016	628/634	840/1260	1575	1875
B x H (mm)	520x140	780x140	1040x140	1300x140	1560x140
B x H: nominal dimensions of the hole					

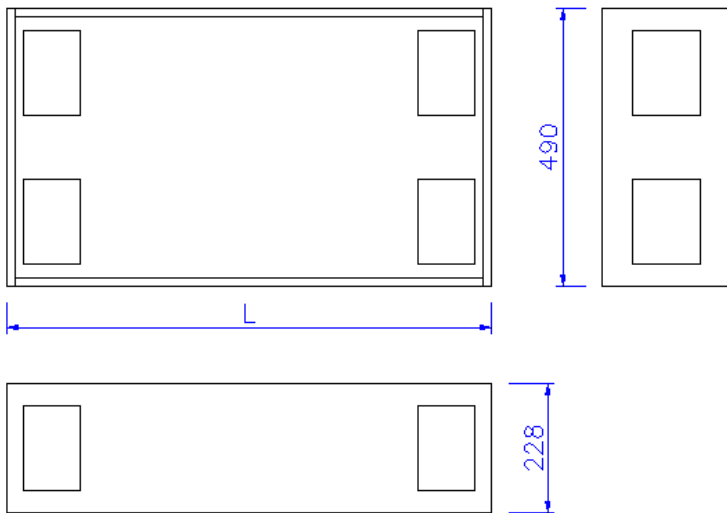
9.17- Insulation for plenum (COIB)

When the plenums are installed on the delivery end, the COIB accessory must also be added, since the plenums supplied as part of the standard equipment are NOT insulated. The insulation, made of 3mm thick closed cell polyethylene, prevents condensation from collecting on the outside of the plenum when cold air flows through it.



9.18-Outer casing (CCM/VF)

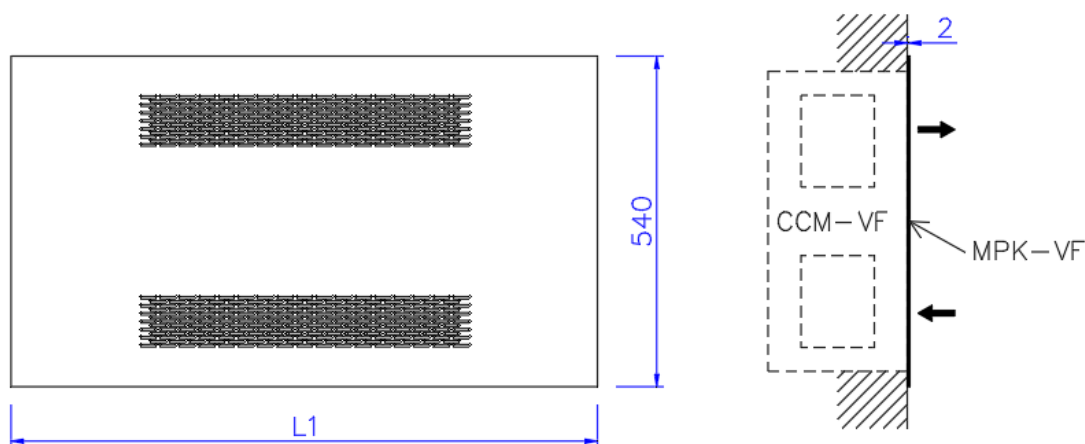
The CCM-VF outer casing is made of galvanised steel and can only be installed vertically, for VF model fan coils. There are pre-sections for pipe inlet in the side, rear and bottom areas. Thanks to its configuration (front air delivery and return), the height of the outer casing and its cover panel is as low as possible.



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L (mm)	860	1120	1380	--	--

9.19-Panel for outer casing (MPK/VF)

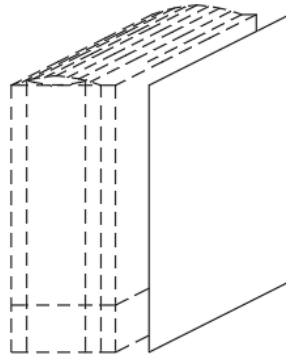
The MPK-VF outer casing panel is made of galvanised RAL9010 white (other colours on request) painted metal plate, and can only be installed vertically on the CCM-VF outer casing. Its design flush with the wall (only 2mm thicker than the wall surface) makes the panel suitable for seamlessly blending with any environment and decoration style.



Fan-coil size	308/3016	628/634	840/1260	1575	1875
L1 (mm)	960	1220	1480	--	--

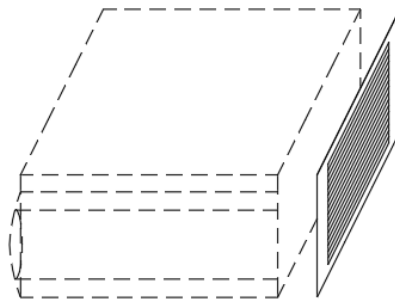
9.20-Rear panel for VA+CZ and VB vertical units (PPV)

This accessory, for vertical units with feet (VA+CZ and VB), consists of a galvanized RAL9010 painted metal plate that closes the rear of the unit. This accessory is required, for aesthetic reasons, when the fan coil is installed against glazed walls.



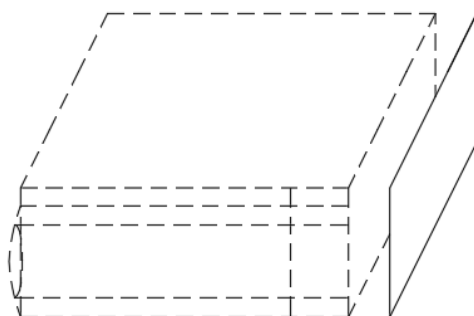
9.21-Rear panel for HA horizontal unit (PPHA)

This accessory, for horizontal units without feet (HA), consists of a galvanized RAL9010 painted metal plate that closes the rear of the unit. This accessory is required, for aesthetic reasons, when the fan coil is installed on a ceiling away from the wall. The metal plate has holes to allow the flow of intake air and is removable to allow for replacement of the filter.



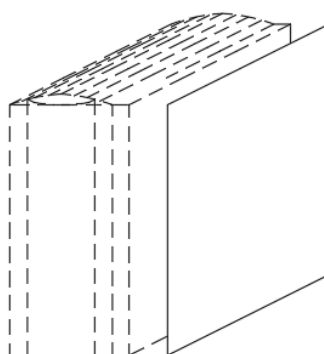
9.22-Rear panel for HB horizontal unit (PPHB)

This accessory, for horizontal units with feet (HB), consists of a galvanized RAL9010 painted metal plate that closes the rear of the unit. This accessory is required, for aesthetic reasons, when the fan coil is installed on a ceiling away from the wall.



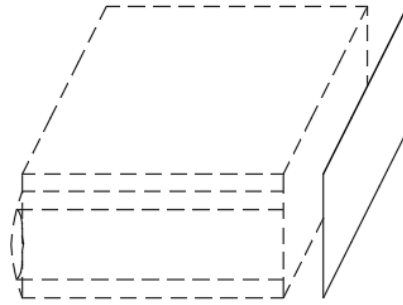
9.23-Rear panel for VL low-down vertical unit (PPVL)

This accessory, for vertical low units (VL), consists of a galvanized RAL9010 painted metal plate that closes the rear of the unit. This accessory is required, for aesthetic reasons, when the fan coil is installed against glazed walls.



9.24-Rear panel for HL horizontal low unit (PPHL)

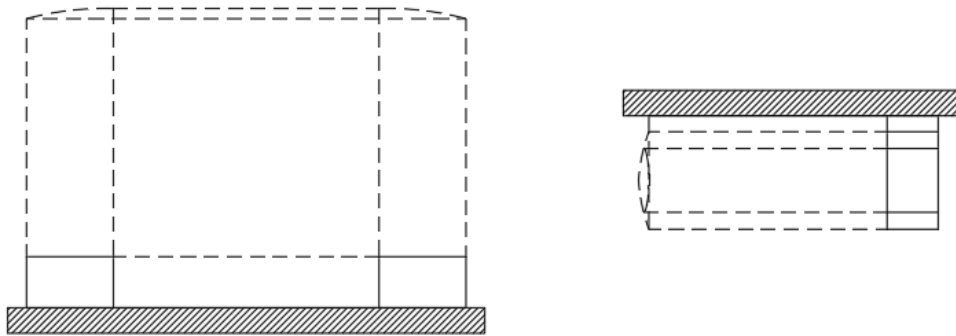
This accessory, for horizontal low units (LH), consists of a galvanized RAL9010 painted metal plate that closes the rear of the unit. This accessory is required, for aesthetic reasons, when the fan coil is installed on a ceiling away from the wall.



9.25-Pair of feet for VA and HA units (CZ)

The pair of feet made of galvanized RAL9010 painted metal plate allows the vertical VA units to be rested on the ground and the pipes coming from floor level to be covered. In HA units, they are designed to hide the pipes and the condensate drain coming from the wall. The overall height of the unit (VA + CZ or HA + CZ) is therefore identical to that of a VB or HB unit.

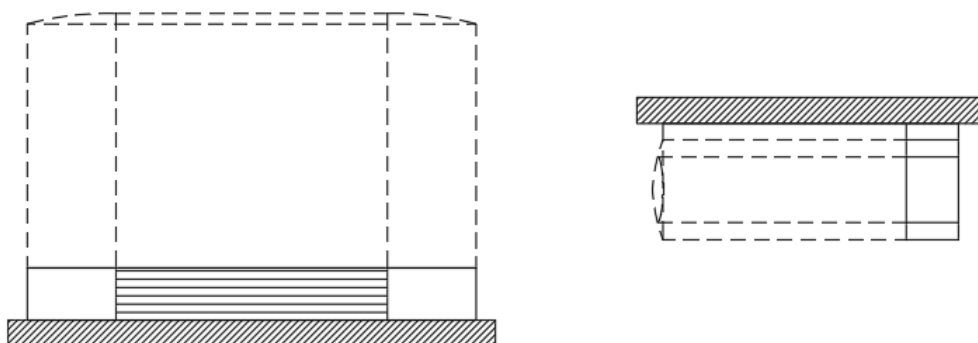
The pair of feet is available in one size, suitable for all unit sizes.



9.26-Pair of feet with suction panel for VA and HA units (CZF)

The pair of feet with suction panel allows the VA units to be converted into VB and HA into HB. It is therefore possible to support the vertical units on the floor and to cover the pipes coming from the floor. In horizontal units, they are designed to hide the pipes and the condensate drain coming from the wall. The overall height of the unit (VA + CZF or HA + CZF) is therefore identical to that of a VB or HB unit.

The pair of feet allows the vertical VA units to be rested on the ground and the pipes coming from floor level to be covered. In HA units, too, they are designed to hide the pipes and the condensate drain coming from the wall. The overall height of the unit (VA + CZ or HA + CZ) is therefore identical to that of a VB or HB unit.



9.27-Synthetic fibre filter (FAG3)

The FAG3 synthetic fibre filter, classified ISO COARSE (ISO 16890) guarantees greater filtration efficiency than a standard filter, although it falls in the same class of filtration. This filter is NOT washable and must be replaced when it is dirty.

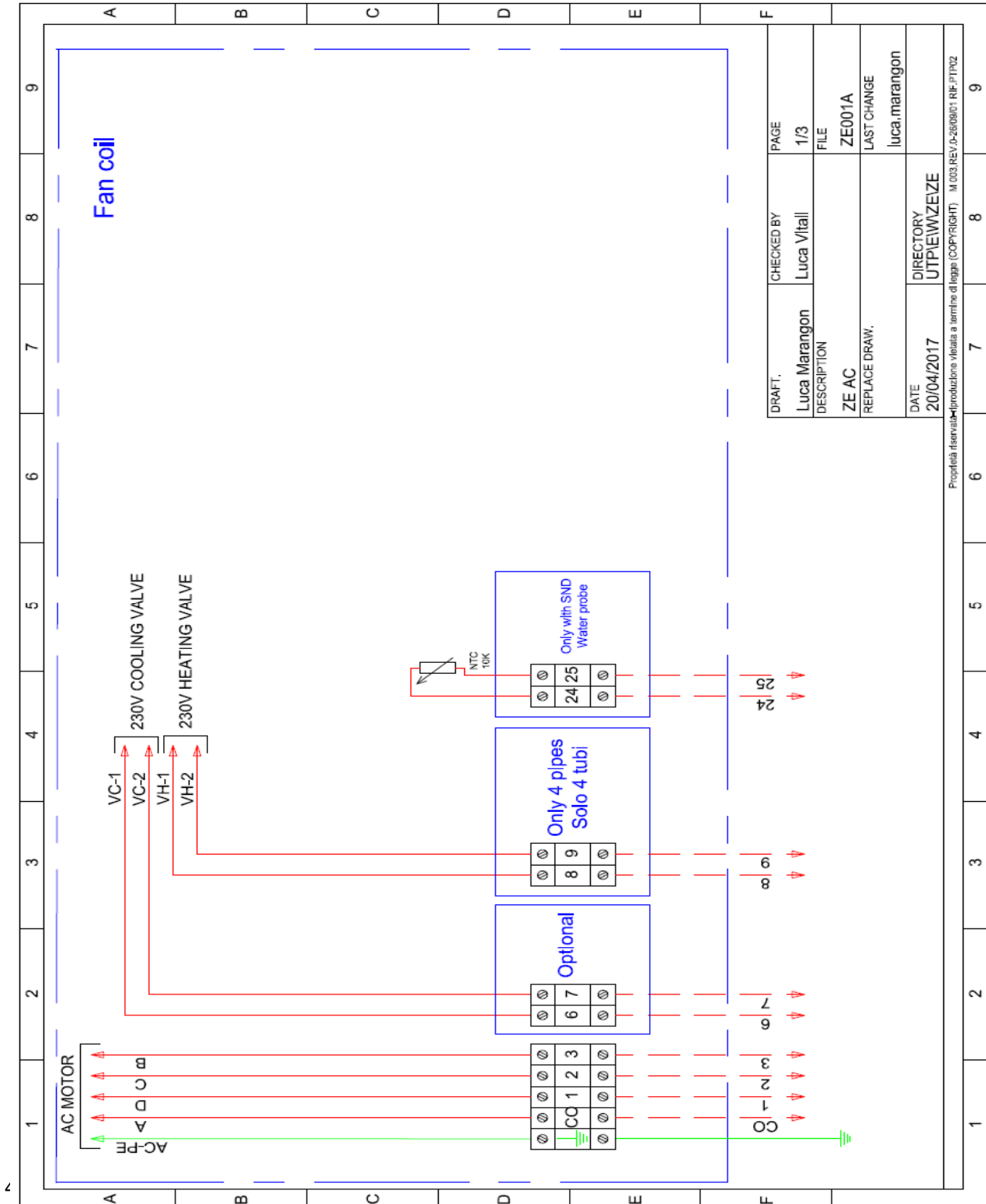
9.28-Filter in synthetic fibre with Sanitized treatment (FA/SAN)

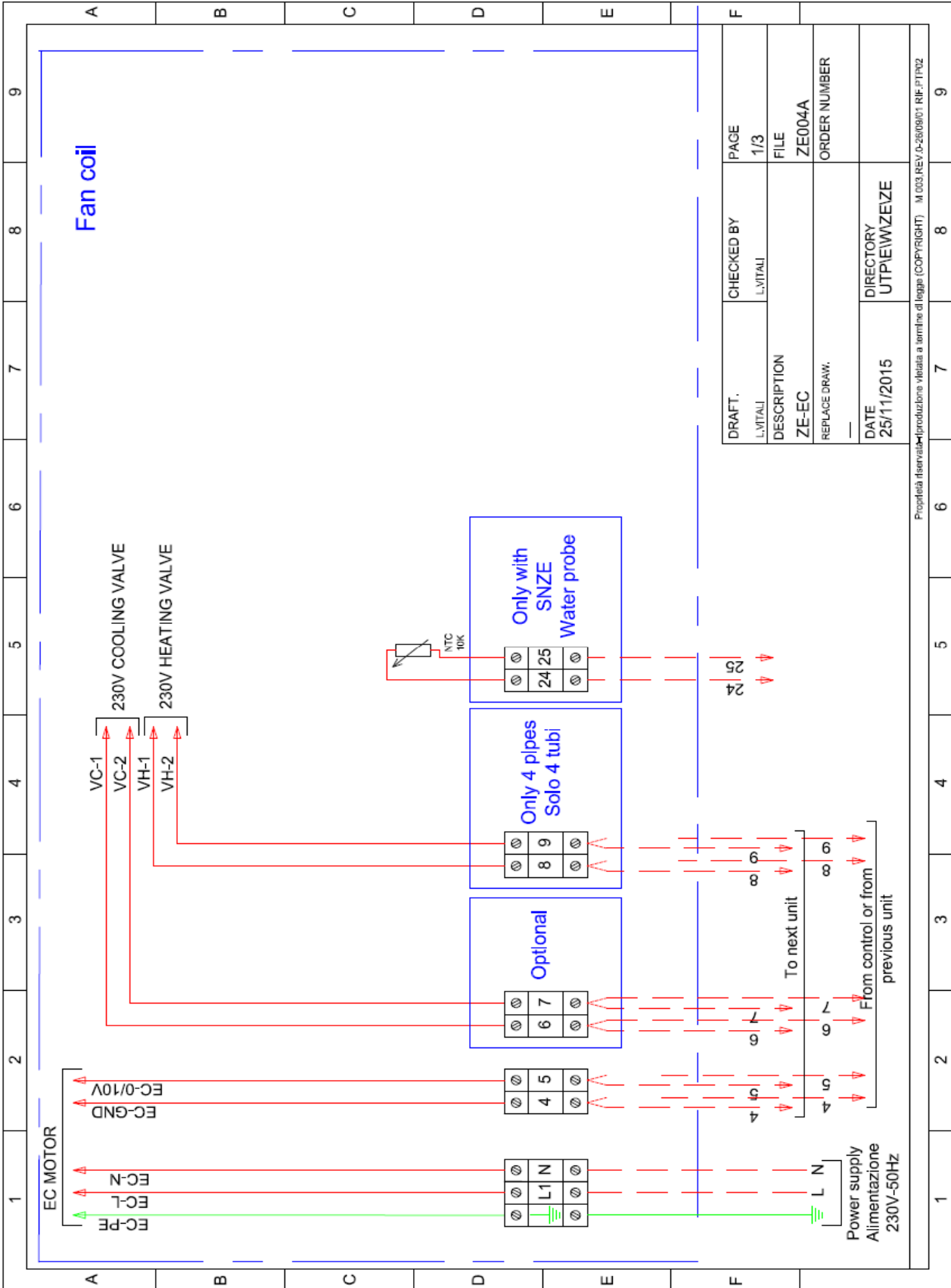
The FA/SAN synthetic fibre filter, classified ISO COARSE (ISO 16890) guarantees greater filtration efficiency than a standard filter, although it falls in the same class of filtration. Additionally, thanks to the special Sanitized treatment, it has an antibacterial effect and prevents fungal growth. This filter is NOT washable and must be replaced when it is dirty. More information and certificates relating to the tests carried out are available from our sales office.

10-ELECTRICAL CONNECTIONS

The electrical panel, based on the chosen configuration of the accessories, can consist of a sheet metal box or a plastic box.

Given the wide range of available accessories and their combinations, this manual only shows the wiring diagram of the "basic" unit, i.e. a three-speed AC or EC motor with 0/10V signal and 230V valves. Each machine is supplied with its specific wiring diagram, based on the chosen equipment.





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DRAFT.	L.VITALI	CHECKED BY	L.VITALI	PAGE	1/3
DESCRIPTION	ZE-EC	FILE	ZE004A	ORDER NUMBER	
REPLACE DRAW.		DATE	25/11/2015	DIRECTORY	UTP/EI/WZEIZE

EXTERNAL THERMOSTAT CONTROLS	
CO	Common fan
1	Minimum fan speed (line)
2	Medium fan speed (line)
3	Maximum fan speed (line)
4	Reference with 0-10V signal
5	0-10V signal for motor control
6	Common 2-pipe valve / 4-pipe cold valve (neutral)
7	Common 2-pipe valve / 4-pipe cold valve (line)
8	Common 4-pipe hot valve (neutral) - only if available
9	Common 4-pipe hot valve (line) - only if available
24-25	NTC water probe - only if available
26-27	NTC remote air probe - only if available



something different

